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ABSTRACT

Using data collected from 4,042 lessons taught by 19 student teachers, this report examines the extent and purpose of media utilization by student teachers who were completing field experience requirements for teacher certification in 15 Saskatchewan schools during the fall semester of 1981. Following a description of the problem and methodology, a literature review section discusses theoretical background, prescriptive and descriptive research viewpoints, previous approaches to research, findings of previous studies, ethnography, teacher planning practices, and an area of concern generated from the literature. Procedures for the study, which used an ecological approach, are next described; they included participant observation, student teacher interviews, and lesson plan log book entries. Data, the subject of the fourth section, were analyzed to determine what media were used, how media were used, and factors affecting media utilization. A six-page reference list is provided. Appendices include a list of the Canadian School Library Association recommended media standards for library demonstration schools, which was used as a survey instrument; a sample of the structured log book record; and interview questions. Forty-three figures are included. (LMM)

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# STUDENT TEACHER

# UTILIZATION OF INSTRUCTIONAL MEDIA

By

Leonard F. Proctor

Submitted to the faculty of the Graduate School
in partial fulfillment of the requirements
for the degree Doctor of Philosophy
in the School of Education
Indiana University
June, 1983

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Dennis W. Pett
Director of Thesis

Doctoral Committee: Dennis W. Pett, Chairperson
Dennis W. Pett

Ivor K. Davies

Gerald W. Marker

John A. Moldstad

Clayton A. Shepherd

June 23, 1983.

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L.F.P.

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# CHAPTER I

# DESCRIPTION OF THE PROBLEM

## INTRODUCTION

It has been demonstrated that pupils can and do learn from audiovisual materials. (Davies, 1971) Teachers can teach with them, without them or in concert with them. But, what about teachers in training? Do they have ready access to sufficient quantities of learning resources? What factors are present in their decision to use or not to use media to promote the achievement of their learning objectives? If media are used, what purposes do they serve? Or, are student teachers so bound up in the logistics of beginning to teach that their use of media takes a very low priority? Does it add yet another increment of difficulty?

"The pull of the future has always been slowed by the drag of the past, and whenever something new or unfamiliar appears on the scene there is an all too human tendency to close all the shutters except little ones through which we can see the things we want to see." (Knowlton & Hawes, 1962, p. 147) However, as books on the history of education universally document, just as there will be resistance to change in the classroom, there will be a gradual acceptance of what proves to be valuable.

In order to determine what new teachers have found to be of value in regard to the use of media to further their own educational outcomes, this investigation examines how student teachers have made use of media

in the completion of their field experience requirements for teacher certification.

This study of student-teacher media utilization was seen to be of importance for two reasons. First, student teachers are products of an educational system which has influenced their thoughts and actions from the time they entered school as students to the day they enter school as student teachers. Because student teachers are closely supervised in an evaluation setting, the probability that they will tend to use those things from their own education which they have found to be of value will be high. Secondly, upon the successful completion of certification requirements, whatever they believe to be true will, in all likelihood, be used to support their case and, on the assumption that they will be successful, perpetuate the system.

These assumptions are supported by a major study recently completed by Goodlad (1983) in which his research team gathered data from 1350 teachers located in schools in all fifty states. While they were able to point out differences in the schools represented in the study, their conclusion regarding teachers and their methods of teaching was that "Teachers teach as they were taught. They employ the techniques and material modeled during the sixteen or more years they were students in schools. Relatively late in this learning through modeling, they experience a modicum of professional preparation to teach -- presented largely in the same telling mode to which they had become accustomed." (Goodlad, 1983, p. 469)

The observation of teaching by student teachers, then, is a useful research strategy because it can be used to mirror what has occurred in the past and reflect on what will likely occur in the near future.

## BACKGROUND TO THE PROBLEM

Teacher activity may be divided into two main categories: teachers who operate as managers of learning resources and teachers who operate as the sole learning resource. (Davies, 1971) In the former case, the teacher tends to be skilled in the use of educational technology. In the latter case, the teacher tends to ignore educational technology. In other words, they feel that they themselves can facilitate learning better than a film, an audio tape, a record, or, indeed, a textbook, a guide, a colleague or a community resource.

Somewhere in between the two ends of the spectrum are teachers who use audiovisual materials primarily for group presentations, without regard for individual differences in the learner's ability to learn. Traditionally, many teachers have used motion picture films in this manner because films and other media have been regarded as aids to teaching rather than as self-contained, individualized means of instruction.

Moldstad (1974) and Saettler (1979) point out that research results have demonstrated that significantly greater learning often occurs when media are integrated into traditional instructional programs, that the learning time for students may be reduced, and that instructional formats

which utilize media are often preferred by students. Complementary to, and frequently necessary for the support of media utilization, teachers in the school may have some special interest or talent in the production of instructional media and the administration of instructional learning resources.

One assumption inherent in the "aids"-to-instruction approach is that the teacher who uses audiovisual media will be a better or more effective teacher. However, very often the "perceptions of good teaching [are] a direct function of the judges' value system. And judges do not always agree." (Brown, 1975, p. 10) For example, it could be argued that researchers in the field of educational technology who have a background in educational psychology favoring the behaviorists's point of view would tend to look for the type of teacher behaviors that are systematically and causally related to student achievement and motivation.

Similarly, researchers with a background in personality psychology would seek to identify teacher personality types that are highly correlated with measures of teacher effectiveness. Further, researchers favoring the aptitude-treatment-interaction perspective would try to identify and design different types of instructional treatments to be delivered by teachers so that, in order to maximize the effectiveness of the teacher, the instruction may take advantage of the differing learning capabilities of the learner.

In each of these examples, the common denominator is the use of media. Gage (1978), in his recent publication entitled The Scientific Basis of

the Art of Teaching, states that "anyone who wants to improve the effect of teacher behavior on student achievement or attitude should help teachers to behave in the ways exemplified by the levels of the independent variable that yield the most desirable values of student achievement and attitude." (Gage, 1978, p. 85)

However, one problem still remains. If the value system of the observer were not congruent with the value system of the teacher, a different perception of what has constituted good teaching (not to mention the appropriateness of independent variables) would result. The context or behavior setting in which teachers carry out their duties can be very influential on their decision making processes because of the degree of interaction between the setting and the participants operating in that particular behavior setting. (Barker, 1968)

The present review of the literature pertaining to the use of media by teachers has identified a major difference between pedagogical theory and classroom practice. The prescriptive literature, based largely on the results of empirical studies, outlines the benefits attributable to the use of media; but, the descriptive literature, based largely on the results of surveys and questionnaires, reveals one almost universal theme: media are seldom used. However, even though there were persistent reports of the under-utilization of media, no standard of what constituted adequate or acceptable use of media in the classroom could be located.

## METHODOLOGY SELECTION

Responses to questionnaires or surveys frequently reflect a respondent's sense of appropriate or expected behavior. "The most common method used to overcome these difficulties of artifact is studying the phenomenon naturalistically and unobtrusively." (Wilson, 1977, p. 248) Because it can be shown that schools can exert many powerful forces on a respondent's behavior, an ecological approach employing participant observation methodology was selected in order to combat, or at least reduce, this potential source of artifact.

The decision to use participant observation to gather data for this study presented its own set of problems in being able to accumulate a sufficient quantity of data upon which to base conclusions. This barrier was overcome by the decision to use student-teacher lesson plans as a preservable source of data. The lesson plans, the observation of lessons taught by the student teachers, the required discussion of these lessons with the student teachers during the normal course of student teacher supervision activities, and postpracticum interviews could then be used to monitor the use of media by student teachers in their classrooms.

Through the use of preservable lesson plan records the power of the participant observation process could be extended; because, while by design the focus of the postconference discussion would always be on the lesson and its presentation, the use of non-textbook instructional resources could be unobtrusively monitored as a naturally occurring event. Par-

ticipant observation then served as a mechanism to confirm or deny the accuracy of the student teachers' planned use of media with their actual use of media with respect to the type of medium used and the objective that the medium was intended to achieve.

Another source of data was the use of student teacher interviews. During the last visit with each student teacher, after all final documentation relevant to the evaluation process had been completed and signed by the supervising teacher, the principal and the investigator, an interview was conducted with each student teacher. The purpose of the interview was to gather information directly from the student teachers about their views on the use of media and the reasons why they had made their respective choices during the course of their student-teaching activity. Data from this interview was used to verify the accuracy of the data as it had appeared in their cumulated lesson plan records.

## DELIMITATION OF THE STUDY

For purposes of this study, consideration of teacher behavior has been restricted to the student teachers' utilization of media in their classrooms during the tenure of their practice teaching assignments required for teacher certification.

Secondly, instructional media have been defined so as to include all potential learning resources, the whole of Dale's (1969) continuum, that

are usable in a classroom except textbooks, workbooks and chalkboards, which have been excluded from the list because of their pervasiveness within virtually every classroom environment. The following list contains the classification scheme used and examples of media that would fall within that category: print materials include nonprojected media such as flat pictures and duplicated handouts; realia, models and globes; person, an individual not employed by the local school; audio, tapes and records or radio; still/silent, projected slides or filmstrips and overhead transparencies; still/audio, sound filmstrips and slide-sets; motion/silent, television picture with the sound turned off or a silent 8 mm. film; motion/audio, television program with sound or a 16 mm. sound motion picture; computer, terminal connected to a mainframe or stand alone mini or microcomputer.

Third, the independent variables selected for consideration in this study are what Dunkin and Biddle (1974) have described as context variables. According to the logic of the descriptive-correlational-experimental loop paradigm of Rosenshine and Furst (1973), and because this study is the first stage in that paradigm, "the independent variables are in fact classification variables; that is, subjects (or factors) classified according to a characteristic which was present prior to the conduct of the experiment (or observation) and did not result from the manipulations of the investigator." (Ferguson, 1976, p. 220)

Fourth, to facilitate counting the frequency of occurrence of media utilization and to make recording the factors leading up to the decision to use or not to use media more manageable, the unit of analysis was the

lesson. A lesson has been defined as a self-contained period of time in which a student teacher interacts with one or more learners.

Fifth, because the method of investigation for this study was of an ethnographic design, multiple sources of data are required. The sources chosen were: a survey to list the background characteristics of the student teachers, a survey to determine the availability of learning resources housed in local school learning resource centers, and a log book in which the details of the student teacher's lesson plans were recorded.

Sixth, data were collected from 19 student teachers enrolled in elementary and secondary teacher education programs at the University of Saskatchewan during the fall of 1981, while they were completing their field experience requirements for teacher certification in that province. Each student teacher taught from 115 to 356 lessons which made a total of 4042 lessons available for analysis. The data and its interpretation are therefore limited to that particular school setting in that particular geographic location.

Finally, the review of the literature did not reveal any previous studies relating directly to the student teacher's actual use of media in the classroom. Therefore, for guidance in research design and methodology, it was necessary to revert to the literature available on the certified classroom teacher's use of media.

## SIGNIFICANCE OF THE STUDY

Very little well-documented information is available on teacher planning activity, let alone student teacher planning activity. The study of planning activity is important because it allows researchers to determine some of the factors affecting the "real world" use of instructional resources by the student teacher. The determination of what these factors are and how they affect the decision-making process would be useful to teacher educators in teacher education course design and course revision.

Secondly, large budgets are expended annually on school resource centers and the providing of that facility with software, hardware, and personnel. In addition, student teachers have frequently expended time, energy and money to complete media preparation coursework during their teacher-training program. In the past, many innovative ways have been proposed for new strategies of using educational media, but as pointed out previously, unless these innovations are reflected in actual classroom settings, change in teaching practices has not been effected.

Third, the influence of high technology is becoming more prominent in our society. It consistently touches almost everyone's daily life. With the advent of the microcomputer, it has been suggested that this influence will be even more prominent. However, if student teachers are not taking advantage of current technology in their classrooms, what are they likely to do with the more complex forms of technology? The implications for the training of teachers are obvious. If student teach-

ers are not favorably disposed toward utilizing media during their terms of student teaching, then it is unlikely that upon certification their disposition toward media will immediately and dramatically change.

Finally, pupils can and do learn via media. If this resource is not being utilized by teachers as part of their repertoire of teaching skills, an effective teaching tool is not being used. Because it is not being used, the learner cannot take advantage of its attributes.

In summary, it has been argued that the study of teaching by student teachers can be an appropriate source of information on the current state of the use of media in elementary and secondary school classrooms. Secondly, by trying to understand the factors which promote the use of media, the probable use of technology in the classroom can be projected into the near future. To achieve this goal, a research design which employed participant observation was selected. The use of this particular approach allowed student teacher media utilization intents to be compared with lesson delivery outcomes. Through this process, the type and frequency of actual media utilization could be monitored exclusive of potential contamination from the student teacher's preconceived perceptions of expected behavior in the classroom.

## STATEMENT OF PURPOSE

The central purpose of this study was to determine what type of non-textbook learning resources student teachers have used, how they have

used these resources to achieve their pedagogical intents and what factors have influenced their rejection or choice of nontextbook learning resources, during the completion of their field experience requirements for teacher certification in the province of Saskatchewan, Canada.

# CHAPTER II

# REVIEW OF THE LITERATURE

## INTRODUCTION

Teacher and student teacher plans for teaching represent the distilled essence, in observable form, of teacher judgment and decision making. In a psychological context, teacher judgment and decision making is made up of the individual's implicit theories, beliefs and values about teaching and learning. (Clark and Yinger, 1979a) Every plan contains some form of statement of a goal or objective. "Behind every objective, there are implicit values, underlying assumptions. These need to be made clear and to be brought out into the open, otherwise we operate at a purely instinctive level." (Davies, 1976, p. 28)

Within an ecological context, then, the lesson plan will reflect relevant factors such as the resources to be used, the external circumstances, or administrative requirements that limit, facilitate and shape teacher thought and action. (Clark and Yinger, 1979a) In other words, a reasonably good approximation of what student teachers will do in the classroom can be obtained by determining, from their lesson plans, those things that student teachers prefer to do, or feel should be done because "much of teaching is presumed to be coping behavior on the part of the teacher." (Dunkin and Biddle, 1974, p. 412)

This chapter has been organized as follows. The first section outlines the theoretical basis for this investigation. The second section explores the apparent discrepancy between the prescription for media utilization in the classroom and the description of actual classroom practice. The methods of investigation employed by these studies and a summary of their findings have been included. Attention has been drawn to reports that have suggested potential reasons for the under-utilization of media by classroom teachers. The third section presents a description and critique of ethnographic research methodology. Finally, this review ends by suggesting that the study of student teacher planning would be an appropriate way to gather data on the utilization of non-textbook learning resources in the classroom.

## THEORETICAL BACKGROUND

Bruner (1966) has conceptualized a theory of teaching as a set of rules governing the most efficient way to engender knowledge, a skill or an attitude in the learner. This point of view is important because it allows a theory of teaching to be differentiated from a theory of learning. In Bruner's view, a theory of teaching can be thought of as prescriptive and normative in nature. Further, teaching can be regarded as an independent variable. As such, teaching per se is a condition that can be manipulated and controlled by the teacher.

According to Bruner, if the end purpose of a textbook, lesson plan, unit of instruction, program or conversation is didactic in nature, then the

issues of predisposition, structure, sequence and reinforcement must be considered in the light of the characteristics of the learner. In other words, in order to derive maximimum benefit from the teaching setting, the event must be carefully planned by the teacher.

From an instructional technologist's point of view, inquiry into the process of planning is important because it offers a window into the pedagogical ideals of the teacher and forges a link between research on curriculum design and research on teacher behavior. In this way, educational technology can itself be used to strengthen the bridge between educational theory and educational practice.

However, in actual practice, it would be regarded as an unusual situation if individual teachers were totally able to follow their own pedagogical ideals exclusive of any constraints. The context (behavior setting) in which they carry out their duties will frequently be very influential in their decision-making processes. "The behavior setting is a central concept in Barker's theory of ecological psychology" (Moos, 1976, p. 213)

The behavior setting was defined by Barker (1968) as including not only the environment in which action and reaction occur, but also the behavior of groups of individuals and particular individuals in that environment. For example, when we go to a basket ball game, shop for groceries, or attend a school, we are participants in a behavior setting as Barker (1968) defined it.

According to Barker (1968), behavior settings have two essential attributes. First, there are one or more standing patterns of behavior, not just of individuals but of the participants en masse, associated with every behavior setting. In addition, the behavior patterns are not dependent on a specific group of participants in a behavior setting during a specific time period. Consider, for example, the reactions of the home team supporters at a popular sporting event, a worship service in a church or a fifth grade class in a school classroom. The overall behavior patterns are for the most part quite predictable. However, as Barker (1968) pointed out, while behavior settings require conformity of their inhabitants, they do not necessarily require uniformity of individual behavior. (Barker, 1968)

A second characteristic of behavior settings is that they include both the man-made and the naturally occurring environment. Although, for example, the hills, streams, buildings, streets, rooms and chairs exist independently of the standing pattern of behavior in a setting, these comprise the physical milieu that surrounds or envelopes whatever behavior patterns exist in the behavior setting.

When viewed in this context, it can be seen that the behavior setting is a naturally occurring entity that has physical, behavioral and temporal properties. As such, behavior settings are influential in the behavior of the participants. This phenomenon has been referred to as behavior/environment congruence. (Wicker, 1972) The most important point to be made here is that it is not only just the settings that affect people or the people that affect settings, it is the continual state of inter-

action between the people in a setting and aspects of the setting itself that produce a stable, and patterned, state of affairs. Therefore, "if we know something about the motives and cognitive processes of the people in a setting, their perception of the input of the setting, and the product from the interaction, we may be able to predict some of the more common behaviors in the setting." (Walsh, 1973, p. 35)

The study of student teacher lesson planning, in an ecological context, presents a unique opportunity to explore some of the factors influencing the utilization of media in a behavior setting. Lesson plans, reflect the resources to be used and external contingencies affecting the lesson that is to be taught. By their very nature, student teacher lesson plans schematically define and record the elements of the behavior setting.

Generally, studies of student teacher planning have focused on concerns such as the congruence between student teacher intents and learner outcomes or the appropriate procedures for observing this process. (Norris and McIntyre, 1979) Similarly, studies of teacher planning have not themselves been very revealing with respect to factors that affect a certified teacher's utilization of learning resources.

## THE PRESCRIPTIVE VIEWPOINT

Guidelines, principles, lists of ideas and prescriptions for the utilization of media in the classroom abound. An examination of well-known

textbooks in the field, such as those written by Gerlach and Ely (1971), Erickson and Curl (1972), or Brown, Lewis and Harcleroad (1977), illustrates this point very clearly.

For example, in the introduction to their book, Gerlach and Ely (1971) present their rationale for writing the book. "The basic premise behind the writing of this book is that media can be selected best and used most creatively when they are chosen on the basis of their potential for implementing specific objectives. Unless objectives are clearly defined first, selection of media is a chance matter. Unless objectives are related to the larger concept of instructional design, they stand alone. We are thus calling for a systematic design of instruction with clearly stated objectives and a selection of media based on their potential form implementing those objectives." (Gerlach and Ely, 1971, p. 2)

Erickson and Curl (1972) answer the question, "How does audiovisual technology help the teacher?", by stating that, "Audiovisual technology refers to the systematic use of a particular category of instructional materials. We say that these materials, or media may play seven basic roles in helping teachers to arrange more effective environments for learning. This help from media, however, is not automatic. This help accrues to those teachers who are competent and creative, and who have at their disposal reasonably effective local resources and services." (Erickson and Curl, 1972, p. 15)

Finally, Brown, Lewis and Harcleroad (1977) in the introduction to their book state, "In terms of learning, optimum results in any instructional

program are attained by using various learning activities and appropriate media selected and arranged in interrelationships by a systematic procedure. The cluster of four opening chapters of the book specifies both the rationale and means for such instructional development." (Brown, Lewis and Harcleroad, 1977, p. ix)

Media utilization in this context may be referred to by what Davies (1971, p. 112) has called "mediating media". Media are seen to be as necessary in facilitating a learner's knowledge or understanding of a phenomenon as a teacher's voice or chalkboard illustration. Once it has served its purpose, the media may be discarded. "Thus, the primary role of the teacher in actualizing the educational potential of the media is to help sharpen and enrich the responses that students make to them." (Arnstine, 1979, p. 141) The behavioral roots of this approach to teaching are clearly shown in these examples.

## THE DESCRIPTIVE VIEWPOINT

The search for the description of, or information pertaining to, how media are actually used in the classroom requires more diligence. Research carried out in this context has frequently been done with the intent of justifying the existence of a media center or media program within a school jurisdiction (Laird, 1978), arguing for the professional development of teachers (Busse, 1976), acquiring audiovisual equipment (Morris, 1963), or serving as an area of inquiry for dissertation authors. (Meiser, 1952; Heyer, 1952; Camp, 1957; Eicholz, 1961; Cleveland

and Krahmer, 1965; King, 1967; Norsted, 1970; Lasher, 1971; Parks, 1977).

Almost all research studies undertaken to determine the nature of the utilization of media in the classroom have one common theme: not much media is actually used. For example, in his study of public schools in Maryland, Liesner (1978) found that most media were infrequently or never used. When they were, the elementary teachers used more media than the secondary teachers, with projection media, namely sixteen millimeter films, being the most popular format.

Elementary teachers tended to use media for teaching the subjects of Reading and Science, while Secondary teachers tended to use media for teaching English, Social Studies and Science. Further, he suggested that the use of media for instruction in curricular areas should be the subject for future research in order to explore more fully the differing patterns of use that seemed to be evident in his study. Leisner's findings are echoed by Baron (1981) in Canada, Millington (1975) in Britain, Wilkes (1980) in Northern Ireland, and Medahunsi (1981) in Nigeria.

In contrast with Leisner's contention that not much media is being used in the classroom, Godfrey (1967) reported that the majority of elementary teachers regularly used audiovisual materials for teaching all subjects. For the secondary school teachers however, only half of the mathematics teachers reported using media, but ninety-five percent of the Science teachers used media regularly. Media utilization by teachers teaching other subjects ranged in between these figures. Training

in the use of media was found to be positively associated with utiliz-ation, but the teaching experience gained in the classroom had little effect on the media utilization patterns. The most popular media used by teachers were phonograph records and motion picture films. These media were used primarily for enrichment purposes. Midson (1975) reported finding a pattern of utilization similar to that outlined by Godfrey.

However, "before any of the advantages attributed to the use of media in the classroom may be realized, media must be universally accepted by classroom teachers as a part of their everyday teaching strategy." (Twyford, 1969, p. 374) Unfortunately, according to the information available in the published reports, the majority find that media are not universally accepted by classroom teachers as part of their everyday teaching strategy. Or, stated another way, except for isolated cases, there is a discrepancy between the literature describing what should be done in the classroom to promote learning and the literature recording current classroom practices. One "cannot afford to sacrifice reality to 'ought to' theories and models." (Taylor, 1978, p. E1)

In reality, the results that have been derived from the cumulation and analysis of empirical media research studies have tended to justify claims of positive pupil learning outcomes. For example, the use of media in the classroom promotes the acquisition of more subject matter content by pupils when media are integrated into traditional instruc-tional programs and equal amounts of learning may be accrued by pupils in less learning time. In this way it can be shown that student learn-

ing is frequently facilitated by the proper use of media in the classroom. (Meldstad, 1974)

Davies (1971, p. 112), in his review of research, suggests that three broad generalizations can be drawn. First, "students do learn from AV materials"; secondly, "the amount they learn depends upon the appropriateness of the AV aid to the learning objectives"; and thirdly, learning from AV aids can be directly and appreciably enhanced by teachers".

In conclusion, it seems fair to state that the available evidence indicates that the use of media in the classroom can promote positive learning outcomes. Therefore, classroom teachers should take advantage of this valuable teaching tool. If they are not, why not?

## PREVIOUS APPROACHES TO RESEARCH

Several types of instruments have been used to gather information on the utilization of media by teachers in their classrooms. Busse (1976) and Wilkes (1980) accepted teacher estimates of their own use of media. Questionnaires or survey instruments were developed by Knowlton and Hawes (1962), Godfrey (1967), Smith (1969), Midson (1975), and the EPIE Institute (1977). Finn et al. (1961) also analyzed published and unpublished reports and census information, in addition to the use of industry surveys. Meiser (1952) and Laird (1978) added interviews to their questionnaires. Knowlton and Hawes (1962) and Acquino (1970) modified

attitude scales to meet their requirements.

The number of respondents in these studies varied in size from a single class of forty teachers taking an audiovisual class (Knowlton and Hawes, 1962), to a nationwide sample with thousands of respondents. (EPIE Institute, 1977)

The tabulation of research results used techniques that ranged from the simple cumulation of frequencies of responses to questions on assessment forms (Busse, 1976), to the use of descriptive statistics. (EPIE Institute, 1977) Only those investigators, such as Knowlton and Hawes, (1962), who were working in an academic environment, used such statistical tools as t-tests for hypothesis testing.

In summary, when viewed as a "Gestalt," these studies are representative of the research techniques that have been used over many years, in a wide variety of circumstances and in several geographical locations.

## FINDINGS OF PREVIOUS STUDIES

Some clues or reasons why media are operationally under-utilized were provided in the work of Hite (1951), on the influence of training in audiovisual techniques, Knowlton and Hawes (1962), on teacher attitudes toward media, and Smith (1969), when he examined the influence of a good role model in promoting the utilization of media in the teaching of elementary school Social Studies courses. Hite (1951) found that teachers

who had training or instruction in audiovisual techniques used more audiovisual materials in teaching and made better use of them. This finding was also confirmed by Godfrey (1967).

Knowlton and Hawes (1962) explored the attitudes of teachers toward media. They found that attitudes were positively correlated with the amount of information teachers had about media, such as that gained from taking a class in audiovisual methods of teaching. However, knowledge was only one element, the motivation to use media was another. Knowlton and Hawes (1962) found that to explain their minimal use of media, the teachers tended to describe barriers to utilization, such as the availability of resources or the reliability of equipment, that made usage of media difficult. They avoided making unfavorable statements about their perception of the instructional value of media.

Simonson et al. (1979) have cumulated and abstracted one hundred and thirty-eight research papers published in AVCR over its twenty-five year history. While they leave the readers to draw their own conclusions regarding problems and trends in the utilization of media, they believe this area of inquiry to be a fruitful area for future research efforts.

The availability of audiovisual resources has been the subject of several major studies. (Finn, et al. 1961; Godfrey, 1967; Midson, 1975) These studies show that major quantities of hardware and software exist in schools.

However, according to Acquino (1970) the amount of equipment which the school owned didn't influence attitudes toward audiovisual instruction as long as the equipment was there when it was needed. He also found that the instant availability of large quantities of resources to school staffs who are not used to using media can have serious side effects. Church (1975) also observed that there were potentially divisive ripples evident between the teachers who tended to teach without the use of media and those teachers who tended to use media to further their instructional goals.

On the other hand, in Church's (1975) report on the Harwood demonstration school library project, he confirmed the suggestion that libraries or learning resource centers have been a stimulant to innovative teaching/learning processes. Children, particularly those from the disadvantaged portion of society, read more when placed in an enriched environment. Their attitudes, expectations and perceptions were enhanced. When this enriched environment was withdrawn, they very quickly lost the gains they had previously exhibited in their attitudes, cognitive knowledge and psychomotor skills. They did, however, maintain a tendency to use public library's audiovisual materials, facilities, resources and services.

Smith (1971) found that there was a high correlation between the audiovisual materials emphasized in Social Studies methods courses and the materials most frequently used by beginning teachers. This suggests that the role models of teachers in training may be an important element in the teacher's utilization of media in their own classroom. Yet in this

case, the theme that teachers at various grade levels do not use a wide variety of media very often was repeated.

Some suggestion has been made that a simple independent variable such as gender or preferred grade level (Cleveland and Krahmer, 1965; Norsted, 1970) may be used to explain media under-utilization. However, Dodge et al. (1974) and Heinich (1970) suggest that under-utilization is not likely due to any one simple variable, instead they attribute under-utilization to a sense of discomfort which is frequently caused by a lack of familiarity with nonprint learning resources.

Perhaps the most sobering discussion of the reasons for the under-utilization of audiovisual resources has been presented by Kemp et al. (1980). They suggest that over the last twenty-five years, experience has shown that: (a) the infusion of large sums of money to purchase equipment, materials and facilities does not automatically pay off in greater use of media or better instructional programs; (b) using a film or videotape of an expert teacher to replace the regular teacher's presentation is not acceptable to a majority of classroom teachers, because learner/teacher interaction and class debriefing are essential elements in the learning process; (c) certified teachers often do not welcome or use sophisticated equipment; (d) the expectations for newer media forms are frequently greater than the results they engender; (e) many of the failed media innovations are innovations that have demanded changes in other parts of the educational environment: (f) there are no single best choices of media for instructional purposes; and (g) changes in instructional methods and the acceptance of media occur very slowly. We must

demonstrate that what we advocate has worth. Perhaps as Gagne (1974, p. 6) points out, "the book is difficult to surpass as a medium for the learning of information."

In summary, an examination of the literature on the utilization of media in the classroom indicates that media are infrequently utilized by teachers, not only in North America, but also in other parts of the world. The training of teachers and the attitude that teachers hold toward media have been identified as factors relevant to consider in any discussion of media utilization by classroom teachers.

## ETHNOGRAPHY

Ethnography, defined in an anthropological context, means "a picture of the way of life of some other people." (Wolcott, 1980; Bogdan and Biklen, 1982) By definition then, an ethnographer is someone who wishes to learn about, record and portray culture. Ethnography is an "analytical process involving the disciplined and systematic uncovering of human behavior and socio-cultural interactive patterns within any environment or milieu." (Wolf and Tymitz, 1976, p. 8) The term ethnography, when applied in education, "emphasizes the accurate description of complex social behavior as observed by researchers *in situ*." (Shrock, 1977, p. 6)

The ethnographic approach rests on the assumption that there are multiple realities. Reality exists in the minds of people and there are as

many realities as there are people. As more becomes known during the course of the inquiry, the inquiry will diverge rather than converge on a single reality as it does in a rationalistic paradigm.

A second assumption is that the researcher and the respondent will interact, each influencing the other. While ethnographers make every effort to suspend their biases, it is neither possible nor desirable for the inquirer to maintain a discrete distance from the respondent.

A third assumption is that context-free generalizations are not possible. The best that can be hoped for is a set of working hypotheses that relate to a particular context. The ethnographic approach aims at focusing on differences between objects as frequently and with as much interest as similarities. Human behavior in the real world is never context-free hence, the knowledge of human behavior individually or in groups is necessarily descriptive. (Guba, 1981)

The fourth assumption of ethnographic research is that individuals have meaning structures that determine much of their behaviors. The investigator seeks to discover what those structures are, how they develop and, in as objective a manner as possible, determine how they influence behavior. For descriptive purposes, Wilson (1977) divides the ethnographic research processes into four components. They are role establishment, data collection, objectivity and data analysis.

Entry into the research setting merits special consideration. Inappropriate action in this regard may influence the basic assumption

that what individuals say and do is consciously and unconsciously shaped by the social situation. "Appropriate relations must be established with each group of subjects" (Guba and Lincoln, 1981, p. 290), because the established role of the researcher may inhibit or facilitate the collection of information. Secondly, the researcher must be trusted and valued, otherwise the researcher's endless stream of questions may produce uncooperative respondent behavior and attitudes. Without their cooperation, the project is doomed to failure.

An essential task of the researcher is to determine what data will be necessary to answer the questions. Several forms may be available. These may be records of verbal interactions among participants or with the researcher, records of nonverbal behavior, records of patterns of action or the lack of action, and traces, archival records, artifacts, documents and unobtrusive measures. Often, as data are gathered, theories emerge which direct the gathering of subsequent data. Participant observers may make use of systematic observation and structured interviewing to be able to compare data such as: what the respondent says in response to a question, what he does to other people, what he says in various situations, or times, what he actually does, nonverbal signs, and so on.

Thus, the participant observer cultivates an empathetic understanding with the respondent that is virtually impossible via quantitative methods, and works systematically to understand their feelings and reactions. "One of the most difficult concepts involved in naturalistic inquiry is that of the inquirer as instrument. He is at one and the

same time instrument administrator, data collector, data analyst, and data interpreter." (Guba and Lincoln, 1981, p. 128) In other words, researchers methodically plan the forms of data that they will collect, the settings in which they will gather the data, the participants with whom they will interact and the questions that they will ask, while being ever vigilant in refusing to manipulate the environment.

The search for theory grounded in the reality of the participant does not mean a disregard for previous work when analyzing data. Previous work can be used whenever it is helpful in explaining current situations to point out the corroboration or contradiction of findings.

Guba and Lincoln (1981) suggest that there are four major characteristics of this process. For them, data analysis is a rule-guided process, is systematic in design, aims for generality, and deals only in manifest content. In every research design, there is a constant necessity for the testing of theory against real data. In addition, negative evidence is also important. Because of their level of awareness of the setting, researchers know what situations are likely to provide discordant information. They can then use this evidence to probe for reasons why a theory cannot account for what has been observed.

## TEACHER PLANNING PRACTICES

Subsequent to 1970, researchers have become more interested in the study of teacher planning behavior. (Taylor, 1978) "This research suggests

that the number of influences will be small, the major influences will include the teacher's own experience, the opinion and behavior of students and to a lesser degree, the principal and other teachers in the school." (Leithwood and MacDonald, 1981, p. 103)

The examination of student teacher lesson plans in this study was regarded as being important because plans for teaching represent the distilled essence, in observable form, of a student teacher's judgment and decision-making processes. In a psychological context, teacher judgment and decision making are made up of the individual's implicit theories, beliefs and values about teaching and learning. (Clark and Yinger, 1979a) Every plan contains some form of statement of a goal or objective. "Behind every objective, there are implicit values, underlying assumptions. These need to be made clear and to be brought out into the open, otherwise we operate at a purely instinctive level." (Davies, 1976, p. 28)

Within the context of an ecological framework, the link between the study of teacher planning and the teacher's classroom utilization of non-textbook learning resources becomes clear. If a reasonably detailed set of daily lesson plans were to be made available for examination, then it would be reasonable to assume that the types of media used, the frequency of media utilization, the source of the media, and the reasons for their use could be determined. Similarly, the reasons for the decision not to use media could be inferred directly or indirectly.

"Very few studies of teacher planning have been conducted. Those that have are more apt to deal with the effects of writing behavioral objectives [e.g., Moffett, 1967] or the kinds of decisions that teachers make when they begin to plan a lesson, rather than with what planning is or what teachers do with their lesson plans." (Cooper, 1977, p. 21) However, in studies conducted on teacher planning by Zahoriak (1970), Morine and Vallance (1976), Yinger (1977), Peterson et al. (1978), and Clark and Yinger, (1979c) reference was made to the teacher's consideration of media in planning for the lesson.

The studies by Morine and Vallance (1976) and Clark and Yinger (1979c) have given some indication of reality in their description of the planning process. In the first case, Morine and Vallance (1976) asked forty elementary teachers to write down their lesson plans for two lessons. These lessons were observed and recorded by special assistants. In addition, this same group of teachers examined the records of a group of their pupils and planned how to begin a reading program for their class. Data from these activities, collected through the use of both interviews and observations, were then analyzed to determine how teachers actually plan.

One trend was clearly established. Teachers regularly jotted down a few notes in a day book and only wrote out detailed lesson plans when they were dealing with unfamiliar material, however when questioned, they insisted that detailed plans were a necessity for the beginning teacher.

In addition, it was found that teachers developed their plans for special lessons over a period of days, often in unusual places, such as driving to work. Planning was an ongoing, continuous process, not confined to an empty, quiet classroom; but, once the plan was devised, formally or informally, the teachers in very few instances incorporated a new topic or procedure which had been suggested by a pupil. Finally, no simple relationship was found to exist between the kinds of planning that teachers did and student achievement except that teachers who tended to make their statements more specific tended to have higher pupil achievement scores. (Morine and Vallance, 1976)

In their report of a field study of teacher planning and plan implementation, Clark and Yinger (1979c) identified a similar pattern. Learning objectives were seldom the starting point for planning. Instead, teachers planned around their pupils and around pupil learning activities. They tended to limit their search for ideas and resources to those that were immediately available. Reading and language arts consumed the most planning time. If planning was carried out in a team teaching situation, it was more explicit and involved more lead time.

Most of the plans consisted of an outline of topics, if they were written down, but many were never committed to paper. The planning that was done seemed to give the teachers a stronger sense of direction and a feeling of security and confidence. This type of planning illustrates the "expedient" approach to planning, as outlined by Davies (1981). While less formal and structured than the "systematic" approach, this process permits teachers to get the job done within the constraints im-

posed by the behavior setting.

In summarizing what we have learned about the mental lives of teachers, Clark and Yinger (1979b) concluded that teachers do not seem to follow a rational model such as those prescribed by teacher-training institutions or curriculum-planning schemas, nor do they begin their planning in relation to clearly specified objectives or goals as prescribed by the systematic approach. Rather, planning is focused on the consideration of the content to be taught and the setting in which it is to be taught, then shifted to student involvement in the lesson or activities to be completed during the lesson. Teacher planning, according to Clark and Yinger, was seen to be the progressive development of a major idea in contrast to the development of a number of alternatives and then the selection of an optimal choice from this set of possible alternatives.

## AN AREA OF CONCERN GENERATED FROM THE LITERATURE

One important area of concern in the present study has received very little attention in the literature. Do teachers in training use media to promote the achievement of their lesson objectives during the time that they are practice teaching? One study by Dunathan and Powers (1979) compared the past and projected the future use of media by beginning education majors. Personality type was found to affect a student's projected utilization of media. Further, Dunathan and Powers (1979) suggest that the utilization of media in the classroom could be increased by systematic desensitization of communication apprehension

exhibited by some students. However, it is important to point out that no follow-up information from the classrooms was available to support the findings of Dunathan and Powers (1979).

The question of media utilization by student teachers is important because of the inherent assumption that teacher-training practices will influence how teachers teach their future students. As previously pointed out, several researchers identified training as being a significant factor in promoting media utilization in elementary and secondary school classrooms. On-the-job experience, on the other hand, was seen to be less influential in promoting media utilization.

Because no data currently exist on student teachers' utilization of media in the delivery of their lessons, a major goal of this study will be to begin to provide some base line information on what media student teachers use, how they employ learning resources and what factors are present in the behavior setting to influence their selection or non-selection of media.

In conclusion, Church's study reinforces Davies' conclusion that pupils can benefit from the availability of learning resources. Secondly, the study of teacher planning was seen to provide a suitable background for the examination of student teacher lesson planning because a lesson plan represents a tangible record of the decision-making process with respect to factors that are present and that influence the decision to use or not to use learning resources in the classroom. Third, an ecological context takes into account the concept of interaction between the stu-

dent teacher, the behavior setting and the influence that each can exert on the other. Finally, the adoption of an ethnographic research design permits the phrasing of the major question to be answered by this inquiry in terms of "What's happening here and why?"

# CHAPTER III

# PROCEDURES FOR THE STUDY AND DESCRIPTION OF THE BEHAVIOR SETTINGS AND RESPONDENTS

## INTRODUCTION

Planning, as defined by Clark and Yinger (1979a) is a process of preparing a framework for guiding teaching action, a process strongly oriented toward a particular action rather than knowledge or self-development. It involves thinking, decision making and judgment. Both Kemp (1977) and Briggs (1977) have referred to an instructional design plan as a methodology that focuses on learner outcomes.

The lesson plan encompasses the things we can specify and some things we can only anticipate. However, the resulting amalgam can be a realistic strategy for the improvement of instruction. The term planning, as it will be used in this study, refers to "the work that a teacher does to establish learning objectives." (Davies, 1971, p. 23)

Ethnographic or ecological accounts do not point the way to making policy decisions, give clues as to what should be done differently, suggest how best to proceed, point out lessons to be gained or suggest remedies to be applied. (Wolcott, 1980) Instead, their task is to trace the development of an entire process. For example, in this study, the entire student teacher's lesson-planning process will be followed from its

inception, continuing on though its elaboration, implementation and evaluation with the intent of determining which factors have influenced the student teacher's decision to use or not to use learning resources in a real world setting.

## THE OBJECTIVE OF THE STUDY AND PROBLEM STATEMENT

The primary purpose or objective of this study will be to determine what kind of instructional media student teacher's use in teaching their lessons and what factors influence their particular choices. It is assumed that the student teachers will operate as decision makers, simplifying complex situations in a rational and adaptive manner. The study of student teacher lesson planning is important because it is a realistic place to observe the relationship between thought and action. It offers a window into the pedagogical ideals of the student teacher and a link between research on curriculum design and research on teacher behavior. (Clark and Yinger, 1979b)

Three questions will serve to focus this inquiry into the student teacher's lesson planning process:

(a) "What kind of nontextbook instructional learning resources do student teachers use in the completion of their field experience requirements for teacher certification?"

(b) "How do student teachers use media to achieve their instructional intents?"

(c) "What factors promote or inhibit the classroom use of non-textbook instructional learning resources by student teachers?"

As seen in the review of the literature, certified teachers use various kinds of media, in varying amounts and with varying degrees of effectiveness. The absence of literature on the use of media by student teachers inhibits making a similar statement for this media user group. Therefore, because little is known about the how or the why of student teacher media utilization, there is little basis for making curriculum decisions related to the teaching of student teachers about the use of media in the classroom.

## DESIGN AND METHODOLOGY

An ecological approach was selected because as Wilkes (1980) has stated, "the pedagogy of any subject is governed by the teachers' convictions about how it can be taught to meet the criteria for success." (Wilkes, 1980, p. 32) In other words, an individual teacher's perception of a particular circumstance or task can be selective in nature. Meaning is imposed on the "real world" by individuals, and the actions that they take are implemented accordingly. The investigator who ignores this phenomenon may be ignoring valuable data. (Dodge and Bogdan, 1974)

A second reason for adopting an ecologic approach was that most research in the area of educational technology has dealt with research questions

related to the nature of learning. Very little research has dealt with the nature of school as an organization. The inclusion of research methodologies from the disciplines of sociology, anthropology and social psychology in an educational technologist's repertoire of research skills would be appropriate because human behavior is undoubtedly influenced by the behavior setting in which it occurs. Any research plan that takes respondents out of their natural setting may negate those forces and obscure understanding.

Dodge and Bogdan (1974) support the ethnographic approach and take the position that "participant observation is a useful methodology for the researcher studying many important questions related to educational technology." (Dodge and Bogdan, 1974, p. 69) Observation is deeply ingrained in the field of educational research and "the only demand that an ecological hypothesis makes is that behavior be studied in the field." (Wilson, 1977, p. 249)

## VARIABLES SELECTION

Mitzel (1960) and Dunkin and Biddle (1974) have set up a classification system for variables useful in the study of teachers and teaching. The four categories of variables that they have outlined are: presage, context, process and product.

Presage variables are demographic in nature, describing such things as the teacher's age, sex, and background training. Context variables

refer to the grade level, subject matter being taught, class size and other features found within the classroom environment. Process variables describe what goes on in the teaching/learning situation, dealing with the ways in which the teachers and learners interact, think, feel and relate to one another. Product variables refer to the assessment of learner achievement.

The presage variables selected for this study were the respondents' academic achievement and their background training in the subjects they were teaching. The context variables selected were: subject taught, grade level, classification of learning type, lesson format, lesson length, class size, class ability, idea source, type of lesson plan, planning time, location while planning, starting point of planning and the use of non-textbook/workbook learning resources. The selection of these variables, with the exception of one, was made in accordance with the findings of Morine and Vallance (1976) The exception, the classification of the learning structure, follows Davies' (1971) definitions of signal, chain, multiple discrimination, concept and principle learning.

By initially focusing on variables selected from the context classification, elements such as what type of lesson plans exist, the amount of time spent planning the lesson, the location in which the plans were generated, what learning resources were used to support the lesson and the source of the idea for the lesson can be identified. In the absence of any literature describing the student teacher lesson planning process, it is necessary to rely on the literature on teacher planning as a

basis for getting started. Thus, it could be suggested that student teachers write detailed plans only in subject areas unfamiliar to them, develop their plans exterior to the school classroom, seldom use learning objectives as a starting point and limit their search for ideas and resources to those immediately available to them.

## THE BEHAVIOR SETTINGS

Nineteen classrooms in fifteen elementary and secondary schools from the Saskatchewan Valley, Parkland, Prince Albert and Northern Lights school divisions were selected by student teachers as sites to complete their field experience requirements for teacher certification. While this process was an organized procedure, it was anything but predictable because the office of field experience forwards to the directors of education for each school division a request for student teacher placement. The directors, in consultation with their principals and teachers, develop a list of teachers who would like to work with student teachers during their term of internship. This list is then published and the student teachers prioritize their first, second and third choices for placement.

Once suitable matches are found by the staff in the field experience office, groups of student teachers, located within "reasonable" geographical proximity to each other are then assigned to a college of education supervisor. The task of the college supervisor is then to work with the student teachers, supervising teachers, principals and dir-

ectors of education to facilitate the appropriate completion of the field experience requirements. From a methodological point of view, it is worth noting that the author of this study had no input into either the student teacher placement process or in the selection of school sites for student teacher placement.

Figures 3.1 and 3.2 summarize the geographical locations and types of schools to which the author of this study was assigned. From Figure 3.2, it may be observed that rural, small town and city schools were available in the sample. In addition, all grade levels in Divisions I through IV were represented. Division I contains grades one, two and three. Similarly, Division II contains grades four, five and six; Division III, grades seven, eight and nine and Division IV, grades ten, eleven and twelve. The student enrollments ranged from just over 150 pupils to approximately 1500 pupils. Figure 3.3 lists the range of subjects being taught in these schools.

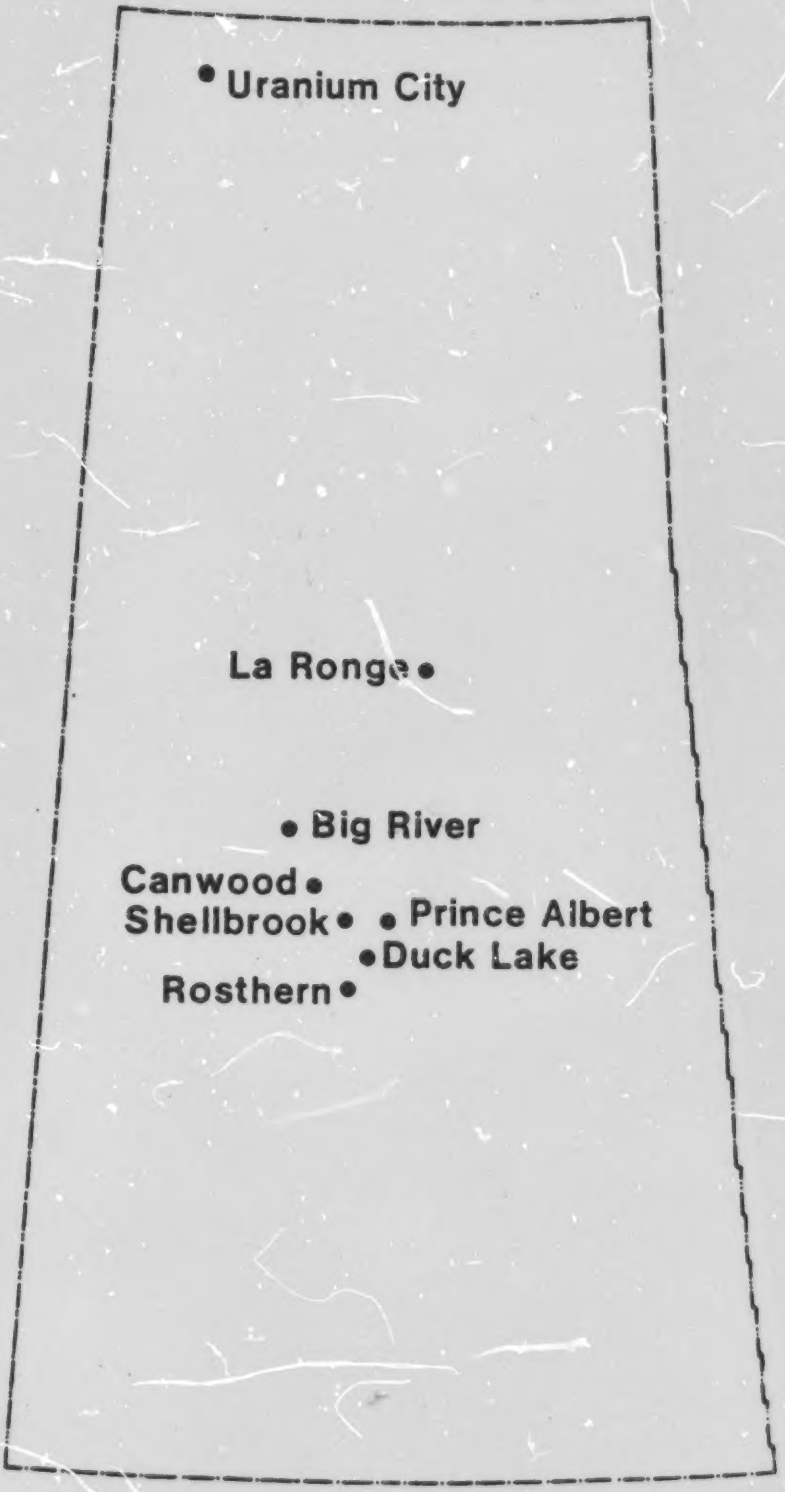


Figure 3.1 Geographical location of schools.

| STUDENT ENROLLMENT | 150 to 250 | 251 to 500 | 501 to 750 | 751 to 1500 |
|---|---|---|---|---|
| Rural | | | | |
| Division I and/or II | 1 | | | |
| Division III and/or IV | | | | |
| Town | | | | |
| Division I and/or II | 2 | 1 | 1 | |
| Division III and/or IV | 2 | 2 | | |
| City | | | | |
| Division I and/or II | 2 | 1 | | |
| Division III and/or IV | 1 | 1 | | 1 |

Figure 3.2 Summary of types of schools and student enrollments.

Agriculture
Art
Biology
Business Education
Chemistry
Christian Ethics
Computer Science
Consumer Education
Cosmetology
Drama
Driver Education
Economics
English
French
General Science
Geography
German
Guidance
Health Education
History
Home Economics
Industrial Arts
Kindergarten
Language Arts
Law
Library
Mathematics
Music
Physical Education
Physics
Psychology
Reading
Religion
Social Science
Special Education
Ukrainian
Vocational Education

Figure 3.3 A list of the subjects taught in the schools.

## INSTRUCTIONAL RESOURCES AVAILABLE LOCALLY

Figure 3.4 summarizes the print resources and media available in the schools. Of course, the schools with larger enrollments had more resources than those with smaller enrollments, but all items were represented in all schools.

Figure 3.5 summarizes the nonprint resources. Notable here was the almost total absence of the 8mm format, while filmstrips, overhead transparencies and flat pictures were well represented. Sixteen millimeter films and videotapes were available to the student teachers from centralized sources, notably Saskmedia. The availability of these resources was well publicized and neither the schools nor the student teachers were charged rental fees for the use of these resources. The projection or playback equipment required for these resources was available to each of the student teachers in each of the schools. The instrument used to gather this data was the C.S.L.A. publication, Recommended Media Standards for Library Demonstration Schools, (1968). A copy of these standards has been included as Appendix A.

The major point to be made here is that significant amounts of print and nonprint learning resources were available to student teachers in their schools. If the resources available from central school division libraries, public libraries, and university libraries had been taken into account, the tallies would have been numerically much larger. In other words, significant amounts of audiovisual hardware and software were identified as being within reasonable proximity and available to student

teachers to use if they chose to incorporate these resources into the lessons they taught.

| | Division I & II | Division III & IV | Combined Totals |
|---|---|---|---|
| Book/Journal Titles | 59,872 | 67,561 | 127,433 |
| Realia | | | |
| Maps/Globes | 155 | 202 | 357 |
| Models/Real Objects | 31 | 5 | 36 |
| Print | | | |
| Spirit Duplicator | | All Schools | |
| Vertical File | | All Schools | |

Figure 3.4 Summary of the print resources available in the schools.

| | Division I & II | | Division III & IV | | Combined Totals | |
|---|---|---|---|---|---|---|
| | Soft-ware | Hard-ware | Soft-ware | Hard-ware | Soft-ware | Hard-ware |
| Audio | | | | | | |
| Tapes/Records | 2374 | 118 | 1299 | 98 | 4033 | 216 |
| Radio | 14 | | 27 | | 41 | |
| Still/Silent | | | | | | |
| Flat Pictures/Opaque | 9000 | 4 | 2100 | 13 | 10100 | 17 |
| Overhead | 2820 | 14 | 7500 | 58 | 10320 | 72 |
| 2 x 2 Slides | 2086 | 5 | 1550 | 19 | 3636 | 24 |
| Filmstrips | 5421 | 29 | 2501 | 42 | 7922 | 71 |
| Still/Audio | | | | | | |
| Sound Filmstrips and/or Slidesets | | 7 | | 9 | | 16 |
| Motion/Silent | | | | | | |
| 8mm. | | 1 | 12 | 5 | 12 | 6 |
| Motion/Audio | | | | | | |
| 16mm. | | 16 | | 36 | | 52 |
| TV/VCR | | 16 | | 19 | | 35 |
| Screens | | 40 | | 120 | | 160 |
| Microcomputer | | | | 7 | | 7 |
| Non-Photo Production Equipment | ---- All Schools ---- | | | | | |
| Photo Production Equipment | | | | 3 | | 3 |

Figure 3.5 Summary of nonprint resources available in the schools.

| Student identification number | Major program emphasis area | Minor program emphasis area | B. Ed. Program | Relative academic performance | No. Arts & Sc. classes | Merit point ratio | No. of Education classes | Merit point ratio | Edcmm. classes completed |
|---|---|---|---|---|---|---|---|---|---|
| 130 | Drama | Social Studies | E | .8380 | 7 | .8571 | 5.5 | .8081 | 0 |
| 290 | History | English | S | .7333 | 13 | .7051 | 7 | .7857 | 3 |
| 220 | Math. | French | E | .7077 | 13 | .7179 | 5.25 | .6825 | 0 |
| 280 | English | Drama | E | .6666 | 6 | .6666 | 5 | .6666 | 0 |
| 100 | English | French | S | .6470 | 11 | .6060 | 6 | .7222 | 0 |
| 210 | Phys. Ed. | Math | E | .5833 | 4 | .6666 | 4 | .5000 | 1 |
| 110 | French | - | E | .5605 | 6 | .5555 | 5 | .5666 | 0 |
| 190 | Phys. Ed. | Math | E | .5454 | 5 | .5000 | 6 | .5833 | 0 |
| 300 | Math. | - | E | .5322 | 4 | .5416 | 6 | .5277 | 1 |
| 120 | Indian Ed. | Social Studies | E | .5110 | 10 | .5666 | 5 | .4000 | 0 |
| 170 | Math. | Biology | E | .4603 | 5.5 | .5151 | 5 | .4000 | 0 |
| 250 | English | History | E | .4123 | 5.5 | .4242 | 5 | .4000 | 0 |
| 160 | English | Geography | S | .4083 | 14 | .4047 | 6 | .4166 | 1 |
| 180 | Ed. Excep. | English | E | .3939 | 6 | .3333 | 5 | .4666 | 0 |
| 240 | History | English | S | .3742 | 13 | .3076 | 4 | .5833 | 0 |
| 200 | French | Phys. Ed. | S | .3472 | 8 | .2916 | 10 | .3916 | 0 |
| 140 | Ed. Excep. | - | E | .3333 | 7 | .3333 | 5 | .3333 | 0 |
| 260 | History | English | E | .3100 | 14 | .2857 | 7.5 | .3555 | 1 |
| 150 | - | - | E | .2010 | 10 | .1666 | 5 | .3000 | 0 |

Figure 3.6 Background training and academic performance of the student teachers.

## THE RESPONDENTS

The respondents in this study were senior College of Education students enrolled at the University of Saskatchewan who were completing student teaching requirements for teacher certification in the Province of Saskatchewan.

One hundred and seventy-four student teachers began their field experience in the fall term of 1981. The ratio of elementary student teachers to secondary student teachers was about 1.5:1. Ninety-seven elementary and sixty-three secondary student teachers completed their field experience requirements. These figures represent slightly better than a ninety-nine percent success rate. Eight faculty members from the College of Education were assigned to supervise the student teachers' field experience. This represents an average case load of about twenty-two students per supervisor. During the sixteen week term, at least five half-day visits per student were considered to be a reasonable expectation of each faculty of education supervisor.

Data for this study were accumulated from nineteen successful student teachers. The ratio of elementary student teachers to secondary student teachers was 2.8:1, slightly higher than the group as a whole. Figure 3.6 summarizes background training and academic performance as reflected in the student teacher's college records. This figure has been arranged in descending order according to the student teacher's academic performance.

The numerical academic performance values were derived from the ratio of merit points earned by student teachers to the total merit points it was possible for each student teacher to achieve in his or her respective program of studies. The merit point system is used by program administrators to identify those student teachers whose academic performance is below college standards and conversely, it is also used to identify those student teachers who are to be presented for scholarships or achievement awards. Student teachers who receive a mark of 80-100 percent on a final exam receive three merit points; 70-80, two merit points; 60-70, one merit point; and less than 60 percent, no merit points.

From Figure 3.6 it should be noted that the sciences, humanities, fine arts and specialty areas in education were represented in the student teachers' program major and minor emphasis areas. Elementary student teachers had received a minimum of two years college training, and secondary student teachers a minimum of three years training, prior to beginning their field experience requirements for teacher certification. The successful completion of five full classes (six credit hours each) represent a full year's (two terms) workload for each student teacher. Classes taken in Educational Communications were considered to represent formal exposure to the preparation and utilization of media in the classroom.

## INSTRUMENTS

Wolcott (1980) describes what field workers do by outlining four categories of activity: participant observation, analysis of written sources, interviewing and the analysis or collection of non-written sources of data.

### Participant Observation

One of the primary problems identified by Dunkin and Biddle (1974) in the collection of data is the fact that teaching is not normally done in public. "Even team teaching arrangements, designed to expand the collaborative efforts of teachers, have not succeeded in making teachers' work activities in the classroom visible to each other." (Dreeben, 1973, p. 468) However, during classroom activities such as those observed by a supervisor of student teachers, the "outside" observer status tends to disappear rather quickly. Observation for the purpose of confirming student teachers' planned use of media with their actual use of media during the lesson delivery can easily be achieved.

The primary instrument used to gather data for this study was the author acting as a participant observer during regular visits to student teachers in their schools. The procedures followed were based on those provided by Guba and Lincoln (1981). Obviously, it was an impossible task to be physically present during all of the lessons taught by all of the student teachers. Even if it were possible, it would not be desirable

because such close supervision would undoubtedly exert unrealistic pressures on all of the participants in the field experience process. Therefore, to avoid this type of contaminating factor, locally accepted visitation practices were followed.

## The Survey

The Canadian School Library Association standards were used by the researcher as a survey instrument to establish the quantity and availability of print and nonprint instructional learning resources available to each student teacher. Instructional learning resources have been defined as all the print materials (with the exception of texts and workbooks), software and hardware used for teaching purposes in a classroom environment.

## The Log Book

A second concern expressed by Dunkin and Biddle (1974) is the fact that classroom activity on the part of the teacher and the learner tend to "flash" past rather quickly, making the observer's job of recording and encoding of classroom events rather difficult to manage. This problem was solved by deferring to policies laid down in the College of Education Field Experiences Handbook (1981).

According to the policy outlined in the handbook, each student teacher is required to devise a lesson plan for each lesson taught in a manner

acceptable to the local supervising teacher and/or the college supervisor. Frequently, student teachers make lesson plan entries in diary or anecdotal form. The present study provided a format for the lesson plans recorded in the student teacher's log book. For the purposes of gathering data for this study, a "structured log book," based on the findings of Morine and Vallance (1976) was devised by the researcher. Its function was to systematically record the student teachers' lesson-planning decisions while they prepared to teach their lessons.

A log book entry was required of each student teacher for every lesson taught during the completion of their practice teaching requirements for teacher certification. The log book then remained as a preservable, permanent, machine readable record of those decisions. By this process, the observer's job of recording and encoding of classroom events could be made manageable within the constraints imposed by the external job requirements. A copy of this instrument has been made available as Appendix B.

## The Interview

Subsequent to the completion of the final evaluation of the student teacher, at the end of the term of field experience and after all the relevant documentation had been completed, an interview was conducted. The questions used in the interview were based on the work of Knowlton and Hawes (1962). The intent of the interview was to determine if instructional factors such as the lack of confidence in the reliability of

equipment were significant in the student teacher's decision to use or not to use media. Questions used in this interview have been recorded in Appendix C.

## Unit of Analysis

The unit of analysis selected for this study was the lesson. The lesson was defined as that period of time, as indicated on a school timetable, for which the student teacher was responsible for the instruction of the class. Using this unit as a basis for the collection of data, it was possible to determine the frequency of a student teacher's utilization of learning resources and the purposes for which they were employed.

The lesson was selected as the unit of analysis because student teachers do not necessarily do all their student teaching in the classroom and at the grade level to which they were assigned. They are in fact actually encouraged to gain some experience at other grade levels and in subjects other than their major or minor program emphasis areas.

## DATA COLLECTION PROCEDURES

On September 3rd and 4th, 1981, early in the beginning of the term, a student teacher/supervising teacher seminar was conducted by College of Education and Saskatchewan Teacher's Federation personnel. The major purposes of the seminar were twofold: first, to acquaint new super-

vising teachers with the use of the current model of the student teacher supervisory cycle being used; and second, to provide an appropriate atmosphere for student teachers and supervising teachers to become better acquainted through the mutual sharing of expectations for the upcoming extended practicum.

During this seminar, the structured log book record was given to the supervising teachers with the explanation that the intent of the record was to gather data on the student teachers' field experience. They were advised that the data would be shared with them. Upon learning that the project would not add anything to their workload, they accepted the proposal.

A similar presentation was made to the student teachers. They were also agreeable. However, some of the terminology used in the log book required specific explanation and definition. Once the terms were explained to everyone's satisfaction, adequate quantities of the log book record sheets were distributed to the student teachers.

The student teachers and supervising teachers then returned to their respective schools. As the student teachers prepared their lessons, they recorded their lesson-planning decisions. These records were then collected during regular supervisory visits by the researcher. The data were then cumulated and shared with each student teacher and supervising teacher on the following visit. Through this process of member checking, any errors that were detected could be immediately corrected.

On October 27, 1981, a follow-up seminar was conducted with the student teachers and supervising teachers. The main objective of this seminar was to provide a time, away from the daily pressures of teaching school, for the student teacher and supervising teacher to engage in a primarily formative appraisal of the student teacher's performance in the classroom. Student teacher strengths and weaknesses were identified. In addition, a plan was devised to assist the student teachers in correcting weaknesses during the next eight week period. If the student teachers' work was deemed to be of sufficient quality to permit the successful completion of their field experience requirements, the student teachers were so advised.

During this seminar, student teachers were given a copy of the structured log book and asked to define its terms in their own words. Upon examining their definitions, it was discovered that many of the student teachers were having difficulty in classifying the variable, learning structure (i.e., signal, chain, multiple discrimination, concept and principle). Additional explanation and examples were provided to the student teachers. It was noted that on subsequent visits to the student teachers there was a shift in classifying the type of learning structure from concepts or principles to signals or chains, particularly in the lessons being taught at the lower grade levels. The log book records were again collected, cumulated and shared, always maintaining anonymity except for the data unique to a particular student teacher/supervising teacher pair.

This process concluded during the last visit with student teachers. On the previous visit, student teachers had been asked to project their teaching commitments to the end of the term and fill out their log book records accordingly. The student teachers were able to comply with this request because, by this time, their student-teaching activities had settled into a predictable routine. During the last visit, final student teacher evaluation reports were filled out. When this process was completed, the interview was conducted with the student teacher.

The student teachers in this study were the "gatekeepers" of information. Securing their cooperation in a tactful and pleasant manner was essential to the success of this study, as it would be with any study employing participant observation and/or interviews. Even though the central thrust of this study was to obtain information about the utilization of media by student teachers, no mention of this goal was made directly. The focus was always on student teacher-generated concerns related to lesson presentation and planning. By using this approach it was possible for the observer (researcher) to function in a manner consistent with accepted college practices, and yet, from the residue of information contained in the structured log book, gain an unobtrusive measure of student teacher media utilization.

During regularly held lesson pre-conferences, student teacher lesson observation, and lesson post-conferences held with student teachers and supervising teachers, it was possible to confirm or deny the accuracy of the lesson plan records. Through this procedure, the utilization of media could be monitored without exerting any perceptible external in-

fluence on the student teacher's field experience, allowing data to be gathered in a manner consistent with ethnographic research design.

## DATA ANALYSIS PROCEDURES

Data analysis began upon receipt of the first student teacher's log book record. Since the records were received in machine readable form, the first step was to verify the accuracy of the student teacher numeric identification code. The record was then read into a computer file and the frequencies of responses to each log book item were tabulated. Coding errors or omissions that were located were then brought to the attention of the student teacher during the next supervisory visit. The errors were corrected and the records were correspondingly edited. The results of this process were then cross checked with field notes to verify the accuracy of specific records. By checking and cross-checking the cumulative results, an accurate portrayal of each student teacher's daily activity could be constructed.

At the end of the term, when the records for each student were complete, final cumulations were printed out for the group as a whole unit, for lessons taught in a specific division level and the total responses for each student teacher. To facilitate answering the research question, "What instructional resources do student teachers use?", the master file was first searched to locate those lessons in which nontextbook resources were used during the teaching of the lesson. Within this subfile, the context variable "choice of resource" was located. Then, for

the group of lessons in which media were used, each category of the non-textbook learning resource was cross tabulated with the remaining context variables. For the remaining group of lessons that did not use media, the reasons given for not using media were similarly tabulated. The tables generated in this process are presented in Chapter IV.

## ETHICAL CONCERNS

Guba and Lincoln (1981) have raised ethical concerns about methodologies which gather data unobtrusively. The solution to their concerns lies in the application of the golden rule of observation, "the observer should examine what he is about to do from the perspective of the subject." (Guba and Lincoln, 1981, p. 210) For this study, it is worth noting that no regulation, obligation or guideline regarding the supervision of student teachers published in the College of Education Field Experiences Handbook (1981) has in any way been subverted. Further, all questions that were asked by student teachers or supervising teachers were answered in an open, straight-forward and tactful manner. In addition, the author has kept all persons party to the process duly informed of the data as it was accumulated, while maintaining confidentially among the participants.

A second test proposed by Guba and Lincoln (1981) relates to the willingness of the researcher to be a respondent (subject) in the study. Finally, on an individual student teacher basis the consequences of participation or nonparticipation in this study would be negligible. No

aspect of this study plumbs information that is not already publicly available.

## LIMITATIONS OF THE STUDY

First and foremost will likely be the reaction of the student teachers to the request to keep a more structured logbook. A college supervisor who is a member of a Department of Educational Communications wanting information on the utilization of learning resources in the classroom should cause some student teachers to ask "Why?". However, in the opinion of the researcher, contamination from this source would likely be negligible because, in the short run, student teachers may use more media then they normally would in order to gain a supervisor's favorable comments; but, in the long term, unless their commitment is very strong, they will likely revert to their normal way of planning and teaching.

Dependence on volunteer teacher or student teacher assistance is not a concern. Each member of the student teacher supervision team has already been assigned a role in the student teacher training process. Nothing within the context of that process was disturbed. As a College of Education Extended Practicum Supervisor, it is quite within the researcher's realm of responsibility to ask for such information as he deems reasonable for subsequent examination, consultation and study.

Learner assessment or evaluation considerations are beyond the scope of this study. This study was restricted to an examination of student

teacher lesson plans with regard to determining the use they made of non-textbook learning resources in their respective classrooms.

The terminology and definition of terms used by the respondents was not always uniform. For example, in the lower grades, the teaching of English is referred to as language arts. To correct for these differences in terminology, the data were edited in order to reflect the definitions of terms as they were intended for use in this study. The mechanisms of member checking, discussion and consultation, were used to minimize errors accruing from the possibility of the misinterpretation of the intended meaning and log book coding errors. It was recognized that the workload of the author could have been reduced by the use of more rigorous training sessions on the use of the structured log book records.

Finally, the records for two student teachers are not quite complete. Although their timetables indicated that 20-30 more lessons were to be taught, log book records were not completed. Secondly, one student teacher indicated that the same lesson was taught in two different rooms and only one logbook record was completed. If any of these duplications occurred without being discovered, the total lesson count may be slightly underestimated. However, complete records do exist for 4,042 lessons.

# CHAPTER IV

# PRESENTATION OF DATA

## INTRODUCTION

The data for this chapter were cummulated from student teacher responses to questions in their structured log book record of lesson-planning decisions. Four thousand and forty-two lessons (4,042) were taught over a period of sixteen weeks. Thirty-three thousand, six hundred and eighty (33,680) decisions were recorded for lessons that used nontextbook resources in their presentation and forty thousand and eighty-six (40,086) decisions were recorded for those lessons that did not use media in their presentations. A machine readable file was created which allowed the total number of decisions (73,766) to be stored in a data file and subjected to manipulation with an SPSS cross-tabulation program.

To generate figures 4.1 to 4.24, which are a summary of the student teachers' decisions, the master file was first searched to locate all those lessons in which non-textbook resources were used during the teaching of the lesson. Within this subfile, the context variable "choice of resource" was located. Then, all other context variables in the log book record were cross-tabulated with the media used. Blanks in the table mean that the student teachers made no decisions that would fit into that particular cell.

Similarly the remaining lessons in the master file were cumulated and the reasons given by student teachers for not using media were tabulated. Collectively, the tables presented here recreate a picture of the student teachers' decision-making processes and summarize the kind of media that were used by student teachers during the completion of their field experience requirements for teacher certification.

## FREQUENCY OF MEDIA UTILIZATION

Out of the four thousand and forty-two (4,042) lessons that were taught by student teachers, sixteen hundred and eighty-four used media. Of those 1,684 lessons, eighty percent used media that required no equipment (hardware) for presentation of the message to the pupils. From Figure 4.1 it can be seen that the most frequently used mode of non-textbook learning resource was the spirit-duplicated handout.

Media that required hardware for the presentation of the software to the pupils accounted for the remaining twenty percent of the instances of utilization. Within this group, the silent/still mode (slides, filmstrips, and overhead transparencies) was the most frequently used non-textbook learning resource. Notably absent was the use of any type of computer even though they were available in some schools. No student teachers selected the computer to be used as a resource in teaching their lessons.

## REASONS STUDENT TEACHERS GAVE FOR USING MEDIA

A variety of reasons were given by student teachers for their use of media in the classroom. Most prominent among the reasons was the stimulation of pupil interest in the lesson and the student teacher's desire to vary the method of instruction. As illustrated in Figure 4.2, these two primary reasons account for two-thirds of the instances of media utilization by student teachers. Pupil-oriented reasons, such as the promotion of understanding by the medium's ability to overcome the limitations of time, distance and space, or the facilitation of the pupil's thinking processes, accounted for only twenty percent of the instances of utilization.

## SOURCE OF IDEAS FOR THE LESSON

Figure 4.3 indicates that the ideas for the student teacher's lessons came primarily from three sources; the student teachers' own ideas, the textbook materials that the student teachers were working with, and the supervising teacher. Other idea sources such as other staff teachers, resource materials or fellow student teachers accounted for only five percent of the ideas for lessons taught using nontextbook resources. No ideas for lessons utilizing media were generated by the student teacher's pupils, principal or college supervisor.

## SOURCES OF NONTEXTBOOK LEARNING RESOURCES

Almost sixty percent of the nontextbook resources used by student teachers were prepared by student teachers. About thirty percent of the nontextbook resources were found in locations, like the school library, to which the student teachers had direct access. Peripheral sources such as school unit libraries, public libraries, university libraries, government or private agencies were only minimally used by student teachers. According to the data in Figure 4.4, only one to three percent of the nontextbook learning resources came from these sources.

## SUBJECTS TAUGHT BY STUDENT TEACHERS

Figures 4.5 and 4.6 summarize the division level and subjects in which media were used. Specific media type/subject level/division level patterns were difficult to establish because of the large disparity in the number of lessons taught in each division and subject. Collectively, however, they do indicate that media were used, at least to some degree, in all subjects except physics and at all division levels.

By chance, the physics lessons referred to here were included in the group of lessons which were observed directly by the author. The refraction of light was the topic of the lesson presented to the grade twelve class. This topic is a prime topic in which to use nontextbook learning resources. Field notes indicated that appropriate nontextbook learning resources were in the school media center and as such, easily

available to the student teacher.

The nontextbook learning resources used to teach the five types of learning structures are summarized in Figure 4.7. Forty percent of the media were used to teach concept learning (i.e., teaching pupils to make generalizations about a whole class of phenomena). Chain learning, (the linking together of two or more previously learned signal structures) and multiple discrimination learning (the distinguishing of one category of phenomena from another) each accounted for twenty percent of the media utilization. Media were used only about thirteen percent of the time to teach the most basic type of learning, signal learning (e.g., the learning of definitions, vocabulary or similar stimulus/response items.) Seven percent of the instances of media utilization involved the teaching of principles. (Principle learning results in the simplest case, from the chaining together by students of two concepts.)

## TYPES OF LEARNING OBJECTIVES PROMOTED

Three-quarters of the media used were used to achieve cognitive objectives, as illustrated in Figure 4.8. In other words, media were seen to be less useful in promoting the pupil attitudes and values (the affective domain) or actual physical skills (the psychomotor domain). The latter two categories accounted for thirteen and twelve percent respectively of the instances of nontextbook learning resource utilization.

## TYPE OF LESSONS IN WHICH MEDIA WERE USED

Nontextbook learning resources were most often used to introduce or develop and expand a topic under consideration in the classroom. Together, these two types of lessons comprise eighty percent of the utilization of media as summarized by Figure 4.9. Topic summary, topic review, or the quantitative assessment of pupil learning accounted for twenty percent of the instances of media utilization.

## TYPES OF LESSON FORMATS IN WHICH MEDIA WERE USED

The drill and practice lesson format involves the pupils' being given specific in-class assignments or tasks to complete. Together, the class works toward the completion of the activity. By answering an individual pupil's questions or monitoring the individual pupil's progress through the assignment, student teachers received feedback on how well the learners have understood the learning task or the topic as it was presented. As illustrated in Figure 4.10, about one-third of the nontextbook learning resources were used in this context.

The presentation of subject content by the traditional teacher-centered methods of lecturing, lecture/demonstration and teacher-led discussion accounted for 43 percent of the instances of media utilization in the classroom. Student centered methods of presentation such as the setting up of learning centers, individualized study or group activities ac-

counted for 41 percent of the instances of nontextbook learning resource utilization.

## PART OF THE LESSON IN WHICH MEDIA WERE USED

From the summary presented in Figure 4.11 of the parts of the lesson in which media were used, it can be seen that no particular component was either dominant or neglected. Presenting the subject matter (instructional input) received a little more attention, and pupil evaluation (assessment of response) received a little less attention than the remainder of the components in this category. Establishing pupil mental readiness to receive instruction (creating an anticipatory set), giving the learners a reason to learn the material (rationale), showing them what to do (modeling) with the material, getting feedback (checking for understanding), and the provision of independant or guided pupil practice each accounted for ten to fifteen percent of the instances of media utilization.

## LENGTH OF LESSONS IN WHICH MEDIA WERE USED

Most of the media were used in lessons which were 41 to 50 minutes in length. One third of the instances of media utilization, as presented in Figure 4.12, were used in lessons of that length. Lessons lengths of 31 to 40 minutes and 21 to 30 minutes each received just over 20 percent of the instances of media utilization. In other words, when these time

periods are considered as a block, it can be seen that nontextbook learning resources were infrequently used in lessons taught by student teachers which lasted less than 20 minutes in length or longer than 50 minutes in length.

## SIZE OF CLASSES IN WHICH MEDIA WERE USED

Classes containing more than 16 pupils but less than 30 pupils account for the majority of the instances of media utilization (85 percent) as summarized in Figure 4.13. Media were not used very much by student teachers when teaching individual pupils, small groups or large groups of learners.

## PERCEPTION OF PUPIL ACADEMIC ABILITIES

Similarly, as shown in Figure 4.14, nontextbook learning resources were used primarily with classes that were considered to be of average academic ability. This outcome in itself is not surprising due to the fact that the majority of the student teachers perceived their pupils to be "normal" pupils functioning normally in a normal classroom.

## PLANNING FOR THE USE OF MEDIA

70 percent of the instances of media utilization were incorporated into formally planned learning experiences (Figure 4.15). 70 percent of the lessons took 30 minutes or less to plan (Figure 4.16), and just over one half of the lesson planning was done at home (Figure 4.17). Half of the planning began with the consideration of subject matter or lesson objectives (Figure 4.18).

## REASONS GIVEN BY STUDENT TEACHERS FOR NOT USING MEDIA

Two thousand three hundred and fifty-eight (2,358) lessons were taught without the assistance of nontextbook learning resources. The most obvious reason given was the feeling that the textbook materials that were provided were adequate to meet the objectives of the lesson (Figure 4.19). The second most prominent reason was the feeling that nontextbook learning resources would not help to achieve the objectives of the lesson. These factors together with the statement that nontextbook learning resources were unnecessary accounted for over ninety percent of the reasons given by student teachers for the nonutilization of media in the classroom.

## DATA FROM STUDENT TEACHER INTERVIEWS

The interview questions and the description of the lesson referred in this section to appear as Appendix C.

Question one served as a means of opening up the interview on a basis with which both the student teacher and the author were familiar and comfortable.

The answers to question two, "Could you teach this lesson?", were affirmative for each of the student teachers. They each felt that, from the description provided, the expectations of them were reasonably well outlined, although a few of the student teachers indicated that they would have to refresh their memories in that particular content area.

For question three, "From your experience with using the checklist, can you recommend any changes?", the addition of categories to some variables listed in the checklist was suggested. These categories were added to the log book record and the suggestions of the student teachers now appear in summary form in figures 4.1 to 4.19.

The student teachers' answers to question four, regarding their choice of nontextbook learning resources they would be <u>least</u> willing to give up, appears as Figure 4.20, along with the reasons given by them for their respective choices. In addition, the cumulative frequencies derived from their individual log book records have also been displayed for each student teacher.

The data for question five, "What nontextbook learning resource would you be most willing to give up?", question six, their most important reason for their use of media, and question seven, the perceived barriers to using media, are similarly arranged in Figures 4.21 to 4.23.

Figure 4.24 records the student teachers' responses to question eight on their perceived frequency of use of nontextbook learning resources in comparison to other teachers in the school.

The answers to question nine on their training in the use of media or experience in media related jobs were the same as the data previously recorded in Figure 3.6.

| WEEK | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| 1 | 64 | 13 | 2 | | | 3 | 1 | | | | 19 |
| 2 | 107 | 26 | 5 | | | 4 | 2 | | | | 37 |
| 3 | 196 | 34 | 14 | | 1 | 12 | 4 | | 3 | | 68 |
| 4 | 227 | 50 | 22 | | 8 | 6 | 5 | 1 | 13 | | 105 |
| 5 | 273 | 60 | 27 | 6 | 3 | 13 | 2 | 1 | 8 | | 120 |
| 6 | 258 | 61 | 25 | 1 | 6 | 10 | 2 | 1 | 5 | | 111 |
| 7 | 205 | 59 | 18 | | 1 | 6 | 3 | | 2 | | 89 |
| 8 | 316 | 79 | 18 | | 5 | 9 | 1 | 1 | 2 | | 115 |
| 9 | 189 | 56 | 7 | | 5 | 6 | 1 | | 1 | | 76 |
| 10 | 313 | 75 | 35 | 2 | 5 | 14 | 4 | | 9 | | 144 |
| 11 | 268 | 65 | 24 | | | 12 | 3 | | 1 | | 105 |
| 12 | 326 | 79 | 49 | 2 | 7 | 14 | 4 | | 8 | | 163 |
| 13 | 381 | 79 | 39 | 3 | 15 | 14 | | | 6 | | 156 |
| 14 | 387 | 76 | 35 | | 7 | 15 | 3 | | 3 | | 139 |
| 15 | 334 | 88 | 21 | | 9 | 17 | 5 | 2 | 6 | | 148 |
| 16 | 198 | 65 | 9 | | 2 | 8 | 2 | | 3 | | 89 |
| TOTALS | 4042 | 965 | 350 | 14 | 74 | 163 | 42 | 6 | 70 | 0 | 1684 |

Figure 4.1 Summary of the quantity of nontextbook resources used each week by student teachers.

| MAIN PURPOSE FOR USING RESOURCE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Stimulate interest | | 300 | 137 | 7 | 30 | 79 | 11 | 4 | 26 | | 594 |
| Vary teaching method | | 353 | 62 | 6 | 25 | 41 | 28 | 1 | 29 | | 545 |
| Promote understanding | | 140 | 93 | 1 | 9 | 18 | | | 14 | | 275 |
| Present subj. matter | | 65 | 32 | | 5 | 16 | | | | | 118 |
| Save time | | 78 | 5 | | 2 | 5 | 2 | | 1 | | 93 |
| Facilitate thinking | | 25 | 19 | | 3 | 3 | | 1 | | | 51 |
| Test understanding | | 3 | | | | | 1 | | | | 4 |
| Summarize lesson | | 1 | 1 | | | | | | | | 2 |
| Reinforce subject matter | | | 1 | | | 1 | | | | | 2 |
| | | | | | | | | | | | 1684 |

Figure 4.2 Summary of the reasons given by student teachers for using media.

| SOURCE OF THE IDEA FOR THE LESSON | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Own | 797 | 596 | 187 | 11 | 36 | 98 | 16 | 4 | 34 | | 982 |
| Textbook/workbook | 1224 | 158 | 95 | 1 | 20 | 44 | 15 | | 14 | | 347 |
| Supervising teacher | 247 | 16 | 46 | 1 | 14 | 15 | 9 | 2 | 22 | | 272 |
| Other teacher | 75 | 33 | 17 | 1 | 3 | 4 | 1 | | | | 59 |
| Resource book | 12 | 14 | 5 | | 1 | 2 | 1 | | | | 23 |
| Other intern | | 1 | | | | | | | | | 1 |
| Pupil | 3 | | | | | | | | | | |
| | | | | | | | | | | | 1684 |

Figure 4.3 Summary of the sources of ideas for student teacher taught lessons.

| SOURCE OF THE RESOURCE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Teacher prepared | | 644 | 189 | 1 | 25 | 74 | 5 | 4 | 2 | | 944 |
| School library | | 243 | 128 | 3 | 37 | 76 | 37 | 2 | 14 | | 540 |
| Saskmedia | | 3 | 4 | | 2 | 3 | | 39 | | | 51 |
| Free | | 12 | 16 | 3 | 1 | 2 | | | | | 34 |
| Public library | | 22 | | | | 1 | | | 10 | | 33 |
| Own | | 5 | 9 | 6 | 8 | 5 | | | | | 33 |
| University library | | 20 | | | | | | | | | 20 |
| Pupil prepared | | 13 | 2 | | | 2 | | | | | 17 |
| Unit library | | 3 | 2 | 1 | 1 | | | | 5 | | 12 |
| | | | | | | | | | | | 1684 |

Figure 4.4 Summary of the sources of nontextbook resources used by student teachers.

| DIVISION LEVEL | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Division I | 576 | 303 | 160 | 4 | 39 | 78 | 7 | 3 | 7 | | 601 |
| Division II | 937 | 237 | 172 | 7 | 10 | 53 | 10 | 1 | 12 | | 502 |
| Division III | 429 | 245 | 16 | 3 | 4 | 20 | 10 | 1 | 24 | | 323 |
| Division IV | 416 | 180 | 2 | | 21 | 12 | 15 | 1 | 27 | | 258 |
| | | | | | | | | | | | 1684 |

Figure 4.5 Summary of the number of lessons taught utilizing nontextbook instructional resources at each school division level.

| SUBJECT | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| English | 1173 | 390 | 49 | 5 | 15 | 17 | 7 | | 4 | | 487 |
| Social Studies | 224 | 248 | 68 | 3 | 2 | 27 | 9 | 1 | 24 | | 382 |
| Science | 92 | 70 | 79 | | 1 | 24 | 3 | | 24 | | 201 |
| Mathematics | 343 | 106 | 46 | | 4 | 9 | | | 1 | | 166 |
| French | 183 | 45 | 4 | | 12 | 15 | 3 | 1 | 3 | | 83 |
| Physical Education | 82 | 4 | 42 | 3 | 11 | 15 | 4 | | | | 79 |
| Art | 36 | 28 | 29 | | | 11 | | | | | 68 |
| Health | 73 | 28 | 13 | | 1 | 16 | 2 | | 6 | | 66 |
| Religion | 14 | 6 | 9 | | 9 | 13 | 1 | | | | 38 |
| German | 20 | 10 | 1 | | 1 | 4 | 10 | | | | 26 |
| E.S.L | 41 | 4 | | | 2 | 4 | 6 | 1 | 6 | | 23 |
| Current affairs | | 19 | | | | | 1 | | | | 20 |
| Music | 4 | 3 | | | 13 | 1 | | | | | 17 |
| Resource room | 58 | 1 | 3 | 3 | 1 | 7 | | | | | 15 |
| Drama | 5 | 1 | 6 | | | | | | | | 7 |
| Consumer Education | | | | | | | | | 2 | | 2 |
| Library | 7 | 2 | | | | | | | | | 2 |
| Party | | | | | 1 | | | | | | 1 |
| Show and tell | | | 1 | | | | | | | | 1 |
| Physics | 3 | | | | | | | | | | |
| | | | | | | | | | | | 1684 |

Figure 4.6 Summary of the subjects taught using nontextbook resources.

| TYPE OF LEARNING STRUCTURE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Concept | 786 | 358 | 143 | 6 | 17 | 67 | 17 | 1 | 48 | | 657 |
| Mult. discrimination | 484 | 221 | 68 | 1 | 7 | 38 | 8 | 1 | 11 | | 355 |
| Chain | 609 | 172 | 76 | 2 | 29 | 38 | 11 | 4 | 6 | | 338 |
| Signal | 393 | 127 | 50 | 2 | 18 | 14 | 5 | | 3 | | 219 |
| Principle | 86 | 87 | 13 | 3 | 3 | 6 | 1 | | 2 | | 115 |
| | | | | | | | | | | | 1684 |

Figure 4.7 Summary of the type of learning structure taught.

| DOMAIN OF THE MAJOR OBJECTIVE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Cognitive | 1955 | 769 | 247 | 8 | 30 | 92 | 35 | 2 | 63 | | 1246 |
| Affective | 172 | 127 | 27 | 2 | 26 | 33 | 6 | 1 | 6 | | 228 |
| Psychomotor | 231 | 69 | 76 | 4 | 18 | 38 | 1 | 3 | 1 | | 210 |
| | | | | | | | | | | | 1684 |

Figure 4.8 Summary of the major objective of the lessons utilizing media.

| LESSON TYPE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Developmental | 1952 | 612 | 219 | 12 | 49 | 84 | 23 | 2 | 32 | | 1033 |
| Introductory | 297 | 140 | 96 | 1 | 12 | 47 | 9 | 3 | 20 | | 328 |
| Review | 228 | 87 | 17 | 1 | 9 | 17 | 2 | | 11 | | 144 |
| Summary | 138 | 67 | 16 | | 4 | 15 | 5 | | 7 | | 114 |
| Examination | 103 | 59 | 2 | | | | 3 | 1 | | | 65 |
| | | | | | | | | | | | 1684 |

Figure 4.9 Summary of the type of lessons in which media were used.

| LESSON FORMAT | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Drill and practice | 1174 | 382 | 102 | 4 | 37 | 55 | 10 | | 5 | | 595 |
| Discussion | 402 | 149 | 45 | 3 | 11 | 22 | 10 | 2 | 12 | | 254 |
| Lecture | 322 | 138 | 45 | | 6 | 29 | 7 | | 26 | | 251 |
| Demonstration | 176 | 55 | 104 | 2 | 8 | 31 | 7 | | 13 | | 220 |
| Learning centers | 78 | 143 | 37 | | 3 | 15 | 2 | | 7 | | 207 |
| Individual activities | 191 | 81 | 12 | 1 | 1 | 8 | 6 | 2 | 7 | | 118 |
| Group activities | 12 | 17 | 5 | 4 | 8 | 3 | | 2 | | | 39 |
| Simulation | 3 | | | | | | | | | | |
| | | | | | | | | | | | 1684 |

Figure 4.10 Summary of lesson presentation formats in which media were used.

| PART OF THE LESSON RESOURCES USED IN | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Instructional input | | 107 | 113 | 6 | 10 | 43 | 9 | 1 | 28 | | 318 |
| Anticipatory set | | 119 | 64 | 1 | 19 | 37 | 8 | | 12 | | 260 |
| Independent practice | | 192 | 25 | | | 10 | | | | | 227 |
| Check understanding | | 151 | 27 | | 4 | 16 | 12 | 1 | 10 | | 221 |
| Guided practice | | 129 | 32 | 4 | 26 | 18 | 3 | | 1 | | 213 |
| Present objecive | | 109 | 25 | | 3 | 12 | 3 | | 18 | | 170 |
| Modeling | | 82 | 56 | 3 | 9 | 15 | 1 | 3 | 1 | | 170 |
| Assess response | | 76 | 8[illegible] | | 2 | 12 | 6 | 1 | | | 105 |
| | | | | | | | | | | | 1684 |

Figure 4.11 Summary of the parts of the lesson in which media were used.

| LESSON LENGTH | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| 41 - 50 min. | 661 | 413 | 51 | 5 | 27 | 34 | 24 | 4 | 32 | | 590 |
| 21 - 30 min | 524 | 144 | 141 | 2 | 19 | 58 | 10 | 1 | 8 | | 383 |
| 31 - 40 min. | 409 | 241 | 82 | 2 | 1 | 22 | 2 | | 23 | | 373 |
| 11 - 20 min. | 330 | 43 | 37 | | 19 | 28 | | | 4 | | 131 |
| 51 - 60 min. | 251 | 57 | 13 | | 3 | 16 | 6 | 1 | 2 | | 98 |
| 61 - 90 min. | 41 | 41 | 7 | 3 | 3 | 4 | | | 1 | | 59 |
| 1 - 10 min. | 142 | 23 | 19 | 1 | 1 | 1 | | | | | 45 |
| 91 - 180 min. | | 3 | | 1 | 1 | | | | | | 5 |
| | | | | | | | | | | | 1684 |

Figure 4.12 Summary of the length of lessons in which media were used.

| CLASS SIZE | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| 16 - 25 pupils | 1384 | 622 | 224 | 10 | 41 | 126 | 29 | 4 | 39 | | 1095 |
| 26 - 30 pupils | 488 | 169 | 78 | 1 | 19 | 12 | 4 | 1 | 24 | | 308 |
| 6 - 15 pupils | 302 | 65 | 31 | | 12 | 10 | 3 | | | | 121 |
| 2 - 5 pupils | 96 | 65 | 4 | | 2 | 7 | 6 | 1 | 7 | | 92 |
| 1 pupil | 66 | 19 | 10 | 3 | | 6 | | | | | 38 |
| 36 - 40 pupils | 9 | 17 | 1 | | | | | | | | 18 |
| 31 - 35 pupils | 13 | 8 | 2 | | | 2 | | | | | 12 |
| | | | | | | | | | | | 1684 |

Figure 4.13 Summary of the class sizes in which media were used.

| ABILITY OF THE CLASS | Total number of lesscns taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Average | 1660 | 684 | 263 | 11 | 64 | 122 | 39 | 6 | 67 | | 1256 |
| Below average | 552 | 218 | 77 | 3 | 7 | 38 | 1 | | 3 | | 347 |
| Above average | 146 | 63 | 10 | | 3 | 3 | 2 | | | | 81 |
| | | | | | | | | | | | 1684 |

Figure 4.14 Summary of the perceived ability of the class in which media were used.

| TYPE OF LESSON PLAN | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Written out/ part of a unit | 1049 | 466 | 154 | 5 | 28 | 59 | 18 | | 44 | | 1151 |
| Written out/ not part of a unit | 559 | 224 | 81 | 1 | 14 | 30 | 16 | 3 | 8 | | |
| Not written out/ part of a unit | 347 | 113 | 39 | 3 | 6 | 38 | 4 | 1 | 15 | | 533 |
| Not written out/not part of a unit | 403 | 162 | 76 | 5 | 26 | 36 | 4 | 2 | 3 | | |
| | | | | | | | | | | | 1684 |

Figure 4.15 Summary of the type of lesson planning done for incorporating media into the lesson.

| TIME SPENT PLANNING THE LESSON | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| 21 - 30 min. | 511 | 264 | 98 | 2 | 15 | 35 | 6 | 1 | 9 | | 430 |
| 11 - 20 min. | 912 | 204 | 9 | 3 | 23 | 52 | 19 | 4 | 15 | | 416 |
| 1 - 10 min. | 643 | 191 | 87 | 6 | 20 | 20 | 4 | 1 | 8 | | 337 |
| 31 - 40 min. | 172 | 157 | 40 | 2 | 7 | 29 | 5 | | 14 | | 254 |
| 41 - 50 min. | 76 | 104 | 18 | 1 | 7 | 14 | 6 | | 10 | | 160 |
| 51 - 60 min. | 27 | 10 | 4 | | 2 | 9 | 2 | | 12 | | 39 |
| 181+ min. | | 17 | | | | | | | 1 | | 18 |
| 91 - 180 min. | 7 | 14 | 1 | | | 1 | | | | | 17 |
| 61 - 90 min. | 10 | 4 | 6 | | | 3 | | | | | 13 |
| | | | | | | | | | | | 1684 |

Figure 4.16 Summary of the the amount of time that student teachers spent planning lessons in which media were used.

| LOCATION WHILE PLANNING THE LESSON | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Home | 1233 | 559 | 192 | 4 | 44 | 94 | 28 | 1 | 35 | | 957 |
| In school | 1125 | 406 | 158 | 10 | 30 | 69 | 14 | 5 | 35 | | 727 |
| | | | | | | | | | | | 1684 |

Figure 4.17 Summary of the location of student teachers while planning the lessons in which they used media.

| STARTING POINT OF PLANNING FOR THE LESSON | Total number of lessons taught WITHOUT media | CHOICE OF NONTEXTBOOK RESOURCE | | | | | | | | | Total number of lessons taught WITH media |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Print | Realia | Person | Audio | Still/silent | Still/audio | Motion/silent | Motion/audio | Computer | |
| Subject matter | 888 | 304 | 118 | 2 | 34 | 60 | 18 | 2 | 14 | | 552 |
| Learner activities | 499 | 222 | 97 | 11 | 18 | 33 | 2 | 3 | 11 | | 397 |
| Objectives | 684 | 236 | 64 | 1 | 9 | 38 | 9 | 1 | 19 | | 377 |
| Nontext resources | 34 | 25 | 32 | | 5 | 13 | 11 | | 26 | | 112 |
| Pupil characteristics | 124 | 58 | 26 | | 2 | 8 | | | | | 94 |
| Evaluation | 93 | 82 | 2 | | 2 | 2 | 1 | | | | 89 |
| Teacher activities | 27 | 36 | 9 | | 4 | 9 | 1 | | | | 59 |
| Coming event | 9 | 2 | 2 | | | | | | | | 4 |
| | | | | | | | | | | | 1684 |

Figure 4.18 Summary of the starting points used by student teachers when planning for their lessons.

| REASON FOR NOT USING NONTEXT RESOURCES | DIVISION LEVEL OF INSTRUCTION | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | Total |
| Text materials adequate | 249 | 588 | 283 | 317 | 1437 |
| Don't believe it would help | 173 | 204 | 101 | 72 | 550 |
| Not necessary | 128 | 88 | 31 | 20 | 267 |
| Too time consuming | 18 | 17 | 4 | 3 | 42 |
| Software unavailable | 6 | 28 | 7 | 4 | 45 |
| Can't operate equipment | | 4 | | | 4 |
| Hardware unavailable | | 1 | 1 | | 2 |
| Missing observations | | | | | 11 |
| TOTALS | 574 | 930 | 427 | 416 | 2358 |

Figure 4.19 Summary of the reasons given by student teachers for not using media.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250 | 110 | 120 | 130 | 180 | 210 | 170 |
| Print | *155* | 47 | 9 | *79* | *8* | *50* | *13* |
| Realia | 7 | 60 | 49 | 45 | 28 | 12 | 7 |
| Audio | 2 | 17 | 2 | 12 | 2 | 4 | 2 |
| Still/Silent | 4 | *64* | *9* | | 2 | 25 | 16 |
| Still/Audio | 1 | 4 | 1 | 2 | | | 1 |
| Motion/Silent | | | | | | 4 | |
| Motion/Audio | 2 | 5 | | | 4 | 2 | |
| Person | | | | 1 | 2 | 2 | 1 |
| Computer | | | | | | | |
| Reasons given for making first choice | | | | | | | |
| Confident in using | | | | | | | <> |
| Make it up myself | <> | | | | | | |
| Easy to get | <> | <> | | | | | <> |
| Catches and holds pupil interest and attention | | | <> | | | | |
| Easy to use | | | | <> | | | <> |
| Everyone has a copy | | | | <> | | | |
| Provides a worksheet | | | | | <> | | |
| Supplements the text | | | | | | <> | |
| Saves pupil time copying | | | | | | <> | |
| Versatile | | | | | | | <> |
| Promotes understanding | | | | | | <> | |
| Adds variety to the lesson | | | | | | | |
| Can answer pupil questions | | | | | | | |
| Adapt content to pupil needs | | | | | | | |
| | | | | | | | |

Figure 4.20 Nontext resources of first choice and summary of reasons given for their selection.

Note: ** indicates the medium of first choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 140 | 200 | 150 | 280 | 300 | 220 | 100 |
| Print | 33 | 48 | 78 | *17* | *18* | *63* | *22* |
| Realia | *30* | 27 | 36 | 19 | | 11 | 1 |
| Audio | | 4 | 1 | 7 | | | |
| Still/Silent | 2 | 4 | | 4 | | 8 | |
| Still/Audio | 4 | *2* | | 2 | | | 3 |
| Motion/Silent | | | | | | | 1 |
| Motion/Audio | 2 | 4 | | | 1 | 21 | 1 |
| Person | | | *5* | | 2 | | |
| Computer | | | | | | | |
| **Reasons given for making first choice** | | | | | | | |
| Confident in using | | | | | | | |
| Make it up myself | | | | | | | |
| Easy to get | | | | | | | |
| Catches and holds pupil interest and attention | <> | <> | | | <> | | |
| Easy to use | | | | | | | |
| Everyone has a copy | | | | | | | |
| Provides a worksheet | | | | | | <> | <> |
| Supplements the text | | | | <> | | | |
| Saves pupil time copying | | | | | <> | | <> |
| Versatile | | | | <> | | | |
| Promotes understanding | <> | | | | | | |
| Adds variety to the lesson | | <> | | | <> | | <> |
| Can answer pupil questions | | | <> | | | | |
| Adapt content to pupil needs | | | | | | | |
| | | | | | | | |

Figure 4.20 Continued.

Note: ** indicates the medium of first choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | |
|---|---|---|---|---|---|---|
| | 290 . | 260 . | 160 . | 240 . | 190 . | FREQUENCY |
| Print | *63* | *163* | *3* | 92 | 4 | 13 |
| Realia | 3 | 1 | 14 | | | 1 |
| Audio | 1 | 4 | | 3 | 13 | |
| Still/Silent | 5 | 8 | 2 | 3 | 7 | 2 |
| Still/Audio | 16 | | | | 6 | 1 |
| Motion/Silent | | | | | 1 | |
| Motion/Audio | | 4 | | *18* | 6 | 1 |
| Person | 1 | | | | | 1 |
| Computer | | | | | | |
| Reasons given for making first choice | | | | | | |
| Confident in using | | | | | | 1 |
| Make it up myself | <> | | | | | 2 |
| Easy to get | <> | | | | | 4 |
| Catches and holds pupil interest and attention | | | | <> | | 5 |
| Easy to use | | | | | | 2 |
| Everyone has a copy | | | | | | 1 |
| Provides a worksheet | | | | | | 3 |
| Supplements the text | | | | <> | | 2 |
| Saves pupil time copying | | | <> | | <> | 5 |
| Versatile | | | | | | 2 |
| Promotes understanding | | | | <> | | 3 |
| Adds variety to the lesson | | | <> | | | 5 |
| Can answer pupil questions | | | | | | 1 |
| Adapt content to pupil needs | | <> | | | | 1 |

Figure 4.20 Continued.

Note: ** indicates the medium of first choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250 | 110 | 120 | 130 | 180 | 210 | 170 |
| Print | 155 | 47 | 9 | 79 | 8 | 50 | 13 |
| Realia | 7 | 60 | 49 | 45 | 28 | 12 | 7 |
| Audio | 2 | 17 | 2 | 12 | 2 | 4 | 2 |
| Still/Silent | 4 | 64 | 9 | | 2 | 25 | 16 |
| Still/Audio | 1 | 4 | 1 | 2 | | | 1 |
| Motion/Silent | | | | | | 4 | |
| Motion/Audio | 2 | 5 | | | 4 | 2 | |
| Person | | | | 1 | 2 | 2 | 1 |
| Computer | ** | ** | ** | ** | ** | ** | ** |
| Reasons given for making last choice | | | | | | | |
| No software | | | | | | | |
| Have never used | <> | | <> | <> | <> | | |
| Don't have one | | <> | | <> | | <> | <> |
| Don't like computers | | | <> | | | | |
| Can't teach handwriting | | | | <> | | | |
| Can't operate | | | | <> | | | |
| Not necessary for teaching of pupils | | | | | <> | | |
| Nothing new/ interesting | | | | | | | |
| Not appropriate tool | | | | | | | |
| Can't promote pupil teacher interaction | | | | | | | |
| Too costly | | | | | | | |
| Don't like dependency | | | | | | | |
| No established method | <> | | | | | | |
| No access | | | | | | | |
| Too much administrative hassle | | | | | | | |
| | | | | | | | |

Figure 4.21 Nontextbook resources of last choice and summary of reasons given for their selection.

Note: ** indicates the medium of last choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 140 | 200 | 150 | 280 | 300 | 220 | 100 |
| Print | *33* | 48 | 78 | 17 | 18 | 63 | 22 |
| Realia | 30 | 27 | 36 | 19 | | 11 | 1 |
| Audio | | 4 | 1 | 7 | | | |
| Still/Silent | 2 | 4 | | 4 | | 8 | |
| Still/Audio | 4 | 2 | | 2 | | | 3 |
| Motion/Silent | | | | | | | 1 |
| Motion/Audio | 2 | 4 | | | 1 | 21 | 1 |
| Person | | | 5 | | 2 | | |
| Computer | | ** | ** | ** | ** | ** | ** |
| Reasons given for making last choice | | | | | | | |
| No software | | | | | | | |
| Have never used | | <> | | | | <> | |
| Don't have one | | | | <> | | | <> |
| Don't like computers | | | | | | | |
| Can't teach handwriting | | | | | | | |
| Can't operate | | | <> | | | | <> |
| Not necessary for teaching of pupils | | | | | | | |
| Nothing new/ interesting | <> | | | | | | |
| Not appropriate tool | | <> | | | | <> | |
| Can't promote pupil teacher interaction | | <> | | | | | |
| Too costly | | | | | <> | | |
| Don't like dependency | | | | | | | <> |
| No established method | | | | | | | |
| No access | | | | | | | |
| Too much administrative hassle | | | | | | | |
| | | | | | | | |

Figure 4.21 Continued.

Note: ** indicates the medium of last choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | |
|---|---|---|---|---|---|---|
| | 290 . | 260 . | 160 . | 240 . | 190 . | FREQUENCY |
| Print | 63 | 163 | 3 | 92 | 4 | 1 |
| Realia | 3 | 1 | 14 | | | |
| Audio | 1 | 4 | | 3 | 13 | |
| Still/Silent | 5 | 8 | 2 | 3 | *7* | 1 |
| Still/Audio | 16 | | | | 6 | |
| Motion/Silent | | | | | 1 | |
| Motion/Audio | | 4 | | 18 | 6 | |
| Person | 1 | | | ** | | 1 |
| Computer | ** | ** | ** | | | 16 |
| Reasons given for making last choice | | | | | | |
| No software | | <> | | | | 1 |
| Have never used | | | | | | 6 |
| Don't have one | | | <> | | | 7 |
| Don't like computers | | | | | | 1 |
| Can't teach handwriting | | | | | | 1 |
| Can't operate | | | <> | | | 4 |
| Not necessary for teaching of pupils | | | | | | 1 |
| Nothing new/ interesting | | | | | <> | 2 |
| Not appropriate tool | | | | | | 2 |
| Can't promote pupil teacher interaction | | | | | | 1 |
| Too costly | | | | | | 1 |
| Don't like dependency | | | | | | 1 |
| No established method | <> | | | | | 2 |
| No access | <> | | | | | 1 |
| Too much administrative hassle | | | | <> | | 1 |
| | | | | | | |

Figure 4.21 Continued.

Note: ** indicates the medium of last choice.
Numbers indicate frequency counts from the log book.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250. | 110. | 120. | 130. | 180. | 210. | 170 |
| PEDAGOGICAL REASONS | | | | | | | |
| Promote understanding | | | | | <> | | |
| Stimulate interest | <> | <> | | <> | <> | <> | <> |
| Save time | <> | | | | | | |
| Vary teaching method | | <> | | <> | <> | <> | <> |
| Facilitate thinking | | | | | | | |
| Test for pupil understanding | | | | | | | |
| Present subject matter | | <> | | | | | |
| Summarize lesson | | | | | | | |
| Reinforcement | | | | | | | |
| | | | | | | | |
| ADMINISTRATIVE REASONS | | | | | | | |
| Provide extra practice | <> | | | <> | | | |
| Characteristics of the pupil | | | <> | | | | |
| Like to use (habit) | | | | | | <> | |
| Easy to obtain | | | | | | | |
| Inherent organization of the subject matter | | | | | | | |
| Add outside sources of information | | | | | | | |
| | | | | | | | |

Figure 4.22 Summary of primary reasons student teachers gave for selecting the media that they used.

| | STUDENT IDENTIFICATION NUMBER |
|---|---|
| | 140.200.150.280.300.220.100 |
| PEDAGOGICAL REASONS | |
| Promote understanding | <> <> |
| Stimulate interest | <> <> <> <> <> |
| Save time | <> |
| Vary teaching method | <> <> |
| Facilitate thinking | <> |
| Test for pupil understanding | |
| Present subject matter | |
| Summarize lesson | |
| Reinforcement | |
| | |
| ADMINISTRATIVE REASONS | |
| Provide extra practice | |
| Characteristics of the pupil | <> <> |
| Like to use (habit) | |
| Easy to obtain | <> |
| Inherent organization of the subject matter | <> |
| Add outside sources of information | <> |
| | |

Figure 4.22 Continued.

| | STUDENT IDENTIFICATION NUMBER | |
|---|---|---|
| | 290.260.160.240.190. | FREQUENCY |
| PEDAGOGICAL REASONS | | |
| Promote understanding | | 5 |
| Stimulate interest | <> | 11 |
| Save time | | 2 |
| Vary teaching method | <> <> | 8 |
| Facilitate thinking | <> | 2 |
| Test for pupil understanding | | |
| Present subject matter | <> | 2 |
| Summarize lesson | | |
| Reinforcement | | |
| | | |
| ADMINISTRATIVE REASONS | | |
| Provide extra practice | | 2 |
| Characteristics of the pupil | <> | 4 |
| Like to use (habit) | | 1 |
| Easy to obtain | <> <> | 3 |
| Inherent organization of the subject matter | | 1 |
| Add outside sources of information | | 1 |
| | | |

Figure 4.22 Continued.

| | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|
| | 250. | 110. | 120. | 130. | 180. | 210. | 170 |
| Too time consuming to use | | <> | | <> | | | |
| Software unavailable | <> | | | | | | |
| Hardware unavailable | | | | <> | | | <> |
| Can't operate equipment | | | | <> | | | |
| Text adequate | | | | | | | |
| Don't believe it would help | | | | | | | |
| Media not necessary | | | | | | | |
| Didn't know what was available | | | | <> | | | |
| Don't like heavy equipment | | | | <> | | | |
| Pupils are too hard to control | | | | | | <> | <> |
| Sup. teacher doesn't like to use | | | | | | | |
| Lack of time to prepare for use | | | | | | | |
| Don't like to order software | | <> | | | <> | <> | |

Figure 4.23 Summary of primary reasons student teachers gave for not using media.

| | STUDENT IDENTIFICATION NUMBER |
|---|---|
| | 140.200.150.280.300.220.100 |
| Too time consuming to use | <> <> |
| Software unavailable | <> <> |
| Hardware unavailable | |
| Can't operate equipment | |
| Text adequate | |
| Don't believe it would help | |
| Media not necessary | |
| Didn't know what was available | <> |
| Don't like heavy equipment | |
| Pupils are too hard to control | |
| Sup. teacher doesn't like to use | <> |
| Lack of time to prepare for use | <> <> <> |
| Don't like to order software | <> <> |

Figure 4.23 Continued.

| | STUDENT IDENTIFICATION NUMBER | |
|---|---|---|
| | 290.260.160.240.190. | FREQUENCY |
| Too time consuming to use | <> <> | 6 |
| Software unavailable | <> | 4 |
| Hardware unavailable | <> | 3 |
| Can't operate equipment | | 1 |
| Text adequate | | |
| Don't believe it would help | <> | 1 |
| Media not necessary | | |
| Didn't know what was available | | 2 |
| Don't like heavy equipment | | 1 |
| Pupils are too hard to control | | 2 |
| Sup. teacher doesn't like to use | | 1 |
| Lack of time to prepare for use | | 3 |
| Don't like to order software | <> | 6 |

Figure 4.23 Continued.

| | |
|---|---|
| 250 | Less than |
| 110 | A little more than |
| 120 | Less than |
| 130 | Less than |
| 180 | More than |
| 210 | Same |
| 170 | A little more than |
| 140 | Same |
| 200 | Same |
| 150 | Same |
| 280 | Same |
| 300 | Same |
| 220 | Less than |
| 100 | Same |
| 290 | Same |
| 260 | More than |
| 160 | Same |
| 240 | More |
| 190 | More |

Figure 4.24 Summary of the student teachers' perceptions of their utilization of media as compared to other teachers in the school.

# CHAPTER V

# DISCUSSION AND CONCLUSIONS

## WHAT MEDIA WERE USED

The first question posed by this study was, "What kind of media do student teachers use during the completion of their field experience requirements?" The answer is that, with the exception of computers, all forms of media were used to some degree by the student teachers. This point is made in Figure 5.1. Upon examination of the data, one pattern or trend is evident. 80 percent of the media used by student teachers did not require hardware (equipment) in order to present the material to the learner. On the other hand, twenty percent did.

Stated another way, four out of five times that a student teacher used media, it was of the type over which the student teacher had total control. This statement is supported by the data in Figure 4.4. In addition, in two-thirds of the lessons delivered by student teachers, they prepared their own materials. One conclusion that may be drawn here is that print resources (pupil handouts) were unquestionably the most popular nontextbook learning resource format.

The frequency of media utilization by student teachers is illustrated in Figure 5.2. When viewed as a group, student teachers used nontextbook learning resource in 42 percent of their lessons. However, when utilization by individual student teachers was examined, the utilization of

nontextbook learning resources ranged from a low of ten percent to a high of 79 percent of the lessons taught. When the frequency of utilization of media that required equipment for its presentation was separated out of the total, a similar pattern emerged. Here, as a group, student teachers used media requiring equipment for the presentation of the material in 8.8 percent of the lessons they taught. Individual student teacher utilization ranged from a low of .004 percent to a high of 27 percent of the lessons taught.

But, "What should be the optimum frequency for the utilization of media by student teachers?" Or, "Is there an optimum mix in terms of learner outcomes, between the use of media that requires equipment for its presentation and media that does not require equipment for its presentation?" One theme that was identified from the review of the literature was the constant reference to the under-utilization of media by certified teachers, but against what standard was this judgment made?

## HOW WERE MEDIA USED

A second question posed in this study was "How were media used by student teachers?" In other words, were there any differences observed between those lessons taught with the use of nontextbook learning resources and those lessons taught without the use nontextbook learning resources?

An examination of Figures 4.7 to 4.14 demonstrates that differences were observed. For example, when the group of lessons that were taught using media are considered as a total picture of the experience of all the student teachers, the highest frequency counts were observed for developmental lessons (Figure 4.9) which were 41 to 50 minutes in length (Figure 4.12) and contained 16 to 25 pupils (Figure 4.13) of average academic ability (Figure 4.14). The main objective of the lesson was cognitive in nature (Figure 4.8), concepts were the major learning structure taught (Figure 4.7) and drill and practice was the teaching methodology most frequently employed (Figure 4.10). The starting point of planning the lesson was the subject matter (Figure 4.18). A formal lesson plan was written out for the lesson (Figure 4.16), and the total time spent by student teachers to plan the lesson was 21 to 30 minutes (Figure 4.15).

If one were to compare the variables receiving the highest frequency counts for lessons in which media were not used, with the highest frequency counts for those lessons in which media were used, only one difference would be observed, and that is in the amount of time that student teachers spent in planning the lessons. Lessons in which non-textbook learning resources were used took longer to prepare.

But, on the other hand, when these same lesson characteristics are compared in terms of the relative percentages a different pattern emerges (Figure 5.3). A lesson in which media was use would likely be an introductory lesson (52%) (Figure 4.9) which was 91 to 180 minutes in length (100%) (Figure 4.12) and contained 36 to 40 pupils (67%) (Figure

4.13) of average academic ability (43%) (Figure 4.14). The main objective of the lesson was affective in nature (57%) (Figure 4.8), principles were the major learning structure taught (57%) (Figure 4.7) and group activities were the teaching methodology most frequently employed (77%) (Figure 4.10). The starting point of planning the lesson was the nontextbook resources (77%) (Figure 4.18). A formal lesson plan was written out for the lesson (42%) (Figure 4.16), and the total time spent by student teachers to plan the lesson was 181 minutes or longer (42%) (Figure 4.15). In addition, when media such as filmstrips, or motion picures were used, it was observed that they were used in their entirety as opposed to utilizing only parts or segments of the media.

In contrast, a lesson in which media were not used, would likely be a developmental lesson (66%) (Figure 4.9) which was 1 to 10 minutes in length (76%) (Figure 4.12) and contained 6 to 15 pupils (71%) (Figure 4.13) of above average academic ability (64%) (Figure 4.14). The main objective of the lesson was cognitive in nature (61%) (Figure 4.8), chains were the major learning structure taught (64%) (Figure 4.7) and simulation the teaching methodology most frequently employed (100%) (Figure 4.10). The starting point of planning the lesson was a coming event (69%) (Figure 4.18). A formal lesson plan was not written out for the lesson (68%) (Figure 4.16), and the total time spent by student teachers to plan the lesson was 11 to 20 minutes (59%) (Figure 4.15).

The inference here is that the pattern of student teacher behavior is consistent with what Davies (1971) has called the "teacher operator." Davies, it will be remembered, suggested that teachers (or student

teachers) who function in this manner presumably consider themselves to be able to facilitate learning in the classroom better than a film or other medium. In this study, only 118 of the 1684 lessons taught in which media were used (7%), were media used to present the subject matter of the lesson (Figure 4.2). Therefore, because media were not used in the teaching of 58% of the total number of lessons and when media were used, the presentation of subject matter received minimal attention, in answer to the question, "How were media used by student teachers in their classrooms?", the reply would have to be, "as an aid to instruction." Three out of every four times that student teachers used media it was to achieve teaching tasks such as the stimulation of pupil interest in the lesson, the varying of their own teaching methods or the presentation of lesson subject matter, rather than to promote learning outcomes such as the facilitation of pupil understanding or thinking.

## FACTORS AFFECTING THE UTILIZATION OF MEDIA

The third question posed in this study was, "Could any factors be identified that promoted or inhibited the use of nontextbook resources by student teachers in their classrooms?" The literature review in Chapter II has suggested that accessibility, background training, the grade level taught, the subject taught and attitude toward the use of media influence the decisions of teachers to use or not to use media.

The first factor explored was accessibility. Accessibility was seen to have two important elements associated with it, the availability of student teacher planning time to prepare lessons that would take advantage of the use of nontextbook learning resources in the classroom and the availability of the learning resources.

## Availability of Planning Time

The workload for the entire group of student teachers has been summarized in Figure 5.4. In total, 4,042 lessons were taught by 19 student teachers. Full-time teachers would have taught about 8,500 lessons during the same time period. When the number of lessons taught by student teachers was compared to the number of lessons that could have been taught, a figure representative of a half-time teacher equivalent was derived. In terms of student teacher workload, this time commitment was consistent with the recommendations given to the supervising teachers by the College of Education's Director of Field Experience. Secondly, student teachers reported spending one hour or less on planning each lesson. The point to be made here is that student teacher planning time, when added together with student teacher teaching time, approximates full-time teacher equivalence or normal workload status.

However, upon examining individual student teacher cases, the individual student teacher's workload ranged from a low of one-quarter full-time equivalence to a high of three-quarters full-time equivalence. There was also considerable variation in the time that elapsed between the

student teachers' arrival at school and the time that they actually began to teach their lessons. On the late side, one student teacher taught nothing for the first three weeks (about half of the student teachers began teaching in the first week), and on the early side, three students began teaching some lessons on the first day that the school was open. Peak activity in terms of the number of lessons taught per week was reached during weeks thirteen, fourteen and fifteen.

In answer to the question, "Was time available to student teachers in which to plan their lessons?", the answer is yes. Student teachers did not immediately assume a heavy lesson load upon their arrival in the school. It was also observed by the author that those student teachers who began to teach more than the average number of lessons per week early in the term did so because of the desire to teach more rather than because external pressures were being applied on them to do so. In addition, those student teachers who began teaching later than their colleagues did so because of extenuating circumstances rather than a lack of desire to teach. In any case, over the entire sixteen-week duration of the student teachers' field experience, no student teacher assumed more than a three-quarter full-time equivalent teaching load.

Availability of Nontextbook Learning Resources

As recorded in Chapter III, substantial amounts of software and hardware were available to student teachers in their schools and from other sources accessible to them. This contention is also supported in Chap-

ter IV. Only two percent of the instances of the non-utilization of nontextbook learning resources could be accounted for by student teachers being unable to locate hardware or software when they chose to use them. Further, the ability to use equipment was not perceived by student teachers as a barrier to utilization because only one-tenth of one percent of the instances of non-utilization could be accounted for by this factor.

If nontextbook resources were available and time was available for lesson planning, was there a relationship between workload and the amount of nontextbook learning resources used by student teachers in the classroom?

Figure 5.5 summarizes student teacher workloads and the number of lessons taught in which media were used. From the number of lessons taught using media, the subset of lessons taught that required hardware for their presentation was singled out. The student teachers were then divided into two categories: those student teachers who assumed a workload greater than half-time equivalence and those student teachers who assumed a workload of less that half-time equivalence.

From the listing, it can be observed that the more ambitious group of student teachers used media in 63% of their lessons. The less ambitious group used media in 37% of their lessons. In addition, the group of student teachers who had the heavier workload used more the complex forms of media that required hardware for their presentation almost twice as frequently as their counterparts who had lighter workloads.

Further, it should follow that student teachers who have more in-school time available to plan their lessons and who have access to adequate quantities of nontextbook learning resources take advantage of their good fortune. As has been demonstrated in Figure 5.5, the opposite was true. Student teachers who had less in-school time available to plan their lessons and locate nontextbook learning resources used more complex forms of media twice as often as their counterparts who had more in-school planning time. Several questions could be posed here. For example, were student teachers who taught less than half-time lazy? Or, were the upper group of student teachers just filling time because they didn't have time to plan? As was pointed out in the literature review, there is a constant interaction between the behavior setting and the participants. Each component exerts an influence on the other. (Moos, 1976)

Employment Expectations

One factor that was present which could provide some explanation of these results was that, while all student teachers were operating under evaluation conditions in their respective behavior settings, some student teachers had a greater vested interest in being successful than others. They wanted jobs in the schools or school units in which they were teaching. In fact, this was often why they chose to complete their field experience requirements in a particular school setting. It has been observed by the author that, in times past, student teachers who

anticipate getting jobs in the schools in which they are student teaching tend to teach more classes, become more involved in extra-curricular activities and search more diligently and farther afield for resources to use in their classrooms. In other words, they put their best foot forward.

The data for student teachers from Figure 5.5 was rearranged and separated according to whether or not particular student teachers wanted jobs in the school divisions in which they were working. This kind of information was available only through direct consultation with student teachers , which of course occurred during the regular supervisory visits to the schools in which they were working.

The data displayed in Figure 5.6 provide one piece of evidence to justify the previously described perception. Student teachers who wanted jobs taught more lessons, used more nontextbook learning resources more often and used more complex forms of nontextbook learning resources more often than student teachers who were not concerned about local jobs. The suggestion to be made here is that the use of media by student teachers may not depend only on academic considerations. External motivation for student teachers to make a good showing in their behavior setting may be a far more powerful force in persuading student teachers to make use of media than pointing out that in many cases instruction can be made more efficient through the appropriate use of nontextbook learning resources in the classroom.

Student Teacher Background Training

The review of literature identified background training as a factor that influences the use of media in the classroom. (Smith, 1971) To test this finding in the present study, the information available in Chapter III on the individual student teacher's background training was matched with the data from Chapter IV on the student teachers' utilization of media in the classroom. Figures 5.7, 5.8, 5.9 and 5.10 summarize this analysis.

In Figure 5.7, student teachers are ranked top to bottom in order of their overall academic performance in completed Arts and Science and Education courses. When media utilization by the top five students is compared with the bottom five students, it can be seen that the higher-achieving students tended to use more complex forms of media more often (9% vs 6.3%). However, when the remainder of the student teachers were taken into account no consistent pattern was evident. Similarly, when only academic performance on education courses was the criterion for rank ordering student teachers (Figure 5.8), no consistent pattern of nontextbook resource utilization was found. The same data organized on the basis of the number of education courses completed (Figure 5.9) and the number of courses taken in Educational Communications (Figure 5.10) produced the same results. In total, no consistent pattern of utilization could be determined.

The conclusion drawn here is that the background training of this group of student teachers was not a factor which influenced their use of media

in the classroom as reflected by counting the instances of their utilization of nontextbook learning resources.

Subject and Grade Level Taught

A third finding from the review of literature in Chapter II was that media utilization was subject and grade level dependent. (Leisner, 1978) Elementary teachers used media more frequently than secondary teachers, and languages, science and social studies lessons were more likely to be taught with the help of media than math lessons.

Figure 5.11 records the number of lessons taught by student teachers in each division (grade) level. The percentage of lessons taught with media was then calculated for each division level. As can be observed, there was, once again, variation among division levels (as would be predicted by Barker's behavior-setting theory), but when the percentages for Divisions I and II (elementary grades) and Division III and IV (secondary grades) were combined, the frequency of media utilization differences virtually disappeared.

The conclusion drawn here is that for the current group of student teachers, in contrast to the findings reported in the literature, elementary student teachers used media no more frequently than secondary student teachers.

Figure 5.12 lists the frequency of the use of media by the subject taught. It can be seen that media were used in every subject taught. However, for this study, two-thirds of the lessons taught in Science and Social Studies used media and one-third of the lessons taught in Math and English used media.

The conclusion drawn here is that while the findings of the literature are partially confirmed, in this study the sample size for some subjects taught by student teachers was too small to demonstrate conclusively a strong pattern of media utilization.

In summary, the analysis thus far has not revealed utilization patterns dependent on the availability of resources, time available to plan lessons, background training or the division level at which the lesson was taught. Rather, it has suggested that for student teachers, media utilization may be independent of academic considerations. External factors such as job expectations, that is, the student teacher's perception of the kind of student teaching activity that would improve their chances of getting a job in the school system may be more influential in promoting the use of non-textbook learning resources than a demonstrated increase in learning efficiency.

Attitude

The last factor addressed by this study was student teacher attitudes toward the use of media in the classroom. Assuming that the promotion

of media utilization in the classroom is a desirable goal, then as Knowlton and Hawes (1962) have suggested, three conditions must be fulfilled.

First, the individual student teacher must possess an adequate cognitive structure. For this study, the term cognitive structure refers to an appropriate knowledge of audiovisual methods and materials.

Second, the student teacher must possess the necessary motivational structure. For this study motivational structure was defined as a positive attitude toward media.

Third, there must not be a competing goal or barrier, the overcoming of which will cause more pain than goal achievement would cause pleasure. For this study, competing goals were defined as barriers to the student teacher's use of media. As pointed out in Chapter II, it does not matter whether the barriers are real barriers or perceived barriers. In either case, they are real to the student teacher.

For purposes of analysis, instructionally relevant reasons (i.e., those reasons referring to the instructional usefulness of media rather than the administrative convenience of using media) were selected from the list of reasons given by student teachers for using nontextbook instructional learning resources. The use of media for instructionally relevant reasons was seen to be one indicator that an appropriate cognitive structure of knowledge of media methods and materials was possessed by the student teachers.

The list of student teacher reasons for not using nontextbook instructional learning resources was sorted into two categories: (1) those reasons over which the student teachers had control; and (2) those reasons over which they had no control. It was assumed that the list of student teacher controllable reasons was symptomatic of their attitudes toward media utilization. Secondly, it was assumed that reasons over which student teachers had no control would operate as barriers to their utilization of media.

The data, reorganized on this basis, has been recorded as Figure 5.13. From the table it can be seen than nine out of every ten times non-textbook instructional learning resources were used by student teachers it was for instructionally relevant reasons.

The conclusion drawn here is that student teachers possess an adequately well-developed cognitive structure to make appropriate decisions about what media to use in the classroom and how to use them.

Secondly, almost every time student teachers decided not to use media, it was for attitudinally based reasons rather than because of a barrier or a perceived barrier to the use of nontextbook instructional learning resources.

The conclusion here is that even though a student teacher is seen to be knowledgable in the area of the utilization of non-textbook instructional learning resources, and there are no real or perceived bar-

riers to the use of these resources, an unfavorable attitude (motivational structure) will inhibit their use of media in the classroom.

## SUMMARY OF THE CONCLUSIONS

The objective of this study was to determine the extent and purpose of media utilization by student teachers who were in the process of completing their student teaching requirements for teacher certification in the Province of Saskatchewan during the 1981 fall term. Data were collected from 4042 lessons taught by 19 student teachers.

One finding of this study was that for every ten lessons taught by student teachers, media were not used in six lessons, nontextbook instructional learning resources based primarily on paper (low) technology were used in three lessons, media that required hardware for its presentation (intermediate technology) were used to teach one lesson, and no lessons were taught using any form of computer-based (high) technology.

Second, when nontextbook instructional learning resources were used, they were employed primarily as aids to instruction rather than as the primary means to deliver instruction.

Third, there are one or more external factors, such as job expectations, functioning singularly or in concert in the behavior setting to promote or inhibit the student teacher's use of nontextbook instructional learning resources. Job expectations may be a more powerful motivator pro-

moting the student teacher's use of media in the classroom than pedagogical reasons such as the notion that the use of media can facilitate pupil learning.

Fourth, when media were used, print media such as spirit-duplicated pupil worksheets or handouts tended to be the most frequently used medium. While the highest frequency counts were recorded for the use of media to promote the pupil achievement of cognitive learner objectives, the promotion of affective learner objectives was dominant in terms of the relative percentage of lessons taught.

Finally, if media were not used in teaching the lesson, it was because of the perception that the textbook was an adequate resource rather than for reasons such as the lack of availability of the appropriate hardware or software.

## SUGGESTIONS FOR FURTHER STUDY

This study was a descriptive study in the descriptive-correlational-experimental loop paradigm described by Rosenshine and Furst (1973). The next step, according to the logic of the paradigm, would be to search for relationships among variables. In this case, further investigation of the following relationships is suggested: a). Is there a relationship between the kind of nontextbook instructional learning resources and the student teachers' perceived need to have full management control over the situations in which they are working?, b). Is there a

relationship between the way in which student teachers use media and their perception of the contribution that media can make to the enhancement of learning?, c). Is there a relationship between the type of nontextbook instructional learning resource student teachers will use and their perception of external forces promoting or inhibiting the use of instructional media?

The implications of this study for the use and future use of nontextbook instructional learning resources in the classrooms of Saskatchewan schools are several. First, against what standard should the use of media be judged? It was observed that nontextbook instructional learning resources were used in just over forty percent of the lessons taught. Eighty percent of those lessons used media produced by low-level technological process. Twenty percent were produced by intermediate technological processes. No lessons were taught by student teachers employing high technology non-textbook instructional learning resources.

How should the amount of media used and the mix of technologies by which they were produced be assessed? To date, standards exist for the amount of hardware and software that should be available in the schools, but there are no comparable standards available against which to judge the appropriate use of media. The development of this type of standard would be a useful area of educational inquiry.

The main perceived value of media by student teachers was as an aid to instruction. The student teachers used media primarily to stimulate

pupil interest in the lesson being taught and to vary their own teaching methodology. The major sources of learner information were the student teacher and textbook materials. Most of the nontextbook instructional learning resources used were locally available and often student teacher produced.

Given these circumstances, the question then arises, can it be shown that there is a relationship between the kind of nontextbook instructional learning resources and the perceived need of the student teacher to have total control over the media they are using and the situation in which they are used? For example, if the spirit duplicator breaks down, class handouts can be written on the chalkboard; but, how does one cope with a motion picture film that fails to arrive or a projection bulb that blows out at the most inopportune time during the lesson?

The results of this line of inquiry would be useful in the design of teacher-education programs because it is unlikely that the teachers of future learners can continue to function as the major source of learner knowledge. If the current rate of development and pervasive influence of microchip technology continue, the teacher of future learners will have to function as a manager of learning and learning resources rather than as a primary source of learner information. The behavior setting of which the student teacher is a part, will have to be designed in such a manner as to accommodate the failure of hardware without penalty being assessed against the student teacher. Otherwise, student teachers will likely be reluctant to explore the potential benefits than can accrue

through the use of nontextbook instructional learning resources.

The analysis of student teacher background training and workload failed to demonstrate any discernible pattern of media utilization by student teachers. However, there appears to be a relationship between the student teachers' use of media and their employment expectations. Those student teachers who wanted jobs in the school division in which they were teaching usually taught more lessons, used non-textbook instructional learning resources more often, and used more complex forms of media than student teachers who were not seeking employment in that school division.

In terms of media utilization are there factors external to knowledge and training that promote the use of media in the classroom? What is the nature of these influences and how strong are they in comparison to the student teacher's knowledge of media and training in the application of nontextbook instructional learning resources to the classroom environment? The definition of external influences and the pursuit of this line of inquiry would be useful in assessing the impact of external forces on the student teacher's use of media.

Conclusions based on the influence that the subject matter taught may have had on the student teachers choice of media generated in this study cannot be used because the quantity of data is insufficient. However, it is evident that there was little difference between the frequency of utilization at the elementary and secondary levels. The literature suggests that elementary teachers use more media than secondary teachers

and that some subjects are more amenable to the use of media than others. It is thus recommended that the present study be replicated in order to gather more data on the influence of the subject taught on the use of nontextbook instructional learning resources. Secondly, data concerning the other variables should also be collected in order to compare the respective findings.

Pupils can learn from media as well as from human instruments of instruction. In some cases, teachers can and do, use all levels of nontextbook instructional learning resources. If the benefits attributable to the use of media in the classroom are to be taken advantage of, then student teachers must be firmly convinced of the merits of all levels of technology or they will not likely use them. Attitudes and values are not readily developed during a one-shot course in the use and preparation of media. Enduring attitudes and values are developed over a long period of time.

Goodlad's (1983) contention that teachers teach as they were taught has a strong message here. In addition to presenting student teachers with appropriate arguments for the use of nontextbook instructional learning resources, the modeling of the appropriate employment of these resources must be constantly available to the student teacher.

The intent of this discussion is not to suggest that a system of education should dramatically and radically change immediately, but rather that the study of student-teacher attitudes toward nontextbook instructional learning resources would be a fertile area of educational

inquiry. The impact of high technology on education is, at present, an open-ended question; but, student teacher attitudes toward high technology will inevitably influence the outcome of any benefits to be derived from the use of nontextbook instructional learning resources.

## EPILOGUE

"Experimental and naturalistic research methods can and should function in complementary ways in the investigation and understanding of behavioral phenomena. Each method has strengths and weaknesses of its own and in many cases the strength of one method is the weakness of the other." (Moos, 1976, p. 239) Moos goes on to point out that, unfortunately, this complementary kind of relationship is seldom seen in practice. Instead, many people have argued for the alleged superiority of one method over the other. Advocates of the experimental mode of research speak glowingly about the "control" provided by the experimental method. They disparage naturalistic methods as being only for avocational purposes. "On the other hand, partisan advocates of naturalistic research believe that the naturalistic method allows the researcher to have access to the "proper subject matter of phychology." (Moos, 1976, p. 239)

Detachment and objectivity in the assessment of the worth of a study is as desirable as the suspension of bias when collecting data by means of participant observation. While it is frequently difficult to stand back and look at the fruits of one's labors with a dispassionate eye, it is a

necessary part of the process. The criteria used for this process were those of outlined by Guba (1981).

According to Guba (1981), the search for a truth is not limited to one particular paradigm. For example, the methods used in experimental inquiry, legal and accreditation proceedings, peer reviews, and judgments of athletic events all have their own different disciplined approaches (patterns) of searching for truth. Each approach has its own assumptions which must be met in order to establish the trustworthiness of the results. The judgment of a naturalistic inquiry then must rest on how well the assumptions of the paradigm have been met.

For this study, the assumptions of the naturalistic paradigm have been met. It was recognized that each of the student teachers would try to be successful. Reality for them was what they perceived it to be. Each student teacher's way of making sense out of reality was different. These differences were accepted without trying in any way to alter the student teachers own perceptions. Secondly, the very nature of the supervisory role assigned to the researcher not only presumes but requires respondent/investigator interaction. However, every effort was made by the author to suspend an inherent bias toward promoting the use of nontextbook instructional learning resources in the classroom.

The temporary suspension of investigator bias was facilitated by focusing attention on the student teacher's lesson planning and lesson presentation. Through this kind of respondent/investigator interaction, it was possible coincidentally to gather data on the type of non-textbook

instructional learning resources being used by student teachers and the purposes for which they were being employed. Finally, no attempt at broad generalization was made in this study. Instead, this study has identified three kinds of relationships that merit further investigation.

The design and methods used in this study have sought to find an appropriate balance between rigor and relevance. While some qualitative methods may require the investigator to enter the setting with a mind equivalent to a "blank slate," there is no logical reason why a qualitative approach can not draw on the findings of earlier inquiries for guidance in the same way that a quantitative approach frequently does. However, one of the major problems encountered in the conduct of this study was the absence of a body of literature directly applicable to the study of the student teacher's use of nontextbook instructional learning resources. On the other hand, related literature was available that did provide guidance on what to observe and assisted in the explantation of observations.

Some elements of any research design can always be specified in advance. All inquiries have time constraints of one kind or another imposed on them. The prudent researcher specifies all such possible elements as far ahead as possible, while retaining a sufficiently flexible posture so as to permit the incorporation of as many changes in the prepared plan of action as are required. The only demand that an ecological hypothesis makes is that the phenomenon be studied in the real world rather than studied in the laboratory. As Piaget has demonstrated,

there is utility in achieving both qualitative and quantitative understanding.

The trustworthiness of a rationalistic inquiry can be established by assessing its internal validity, external validity (generalizability), reliability and objectivity. These criteria have been translated into naturalistic inquiry terminology by Guba and Lincoln (1982). They suggest that the trustworthiness of a naturalistic inquiry should be assessed by examining its credibility, transferability, dependability and confirmability.

The naturalistic inquirer establishes credibility (internal validity) by dealing with patterns in their entirety rather than abstracting a variable of interest and remanding the rest of the variables to control through the process of randomization. The credibility of a naturalistic inquiry can be enhanced by prolonged engagement of the researcher at the site of the investigation, persistent observation, peer debriefing, triangulation, artifact retention, and member checking.

In this study, each of these criteria for the assessment of the trustworthiness of a study has been adhered to. For example, the researcher's role in student-teacher supervision, as defined by the employer, was understood by the respondents because of the nature and tradition of the behavior setting. The entry of the investigator into the setting was facilitated by these circumstances.

In addition, appropriate patterns of interaction with the respondents were established early in the study. Enough time was spent at each study site to allow the respondents to become as comfortable as possible with the process. Persistent and systematic observations were carried out at regular intervals as a naturally occurring event associated with the job role. Part of one day each week was set aside by the researcher for peer debriefing. This procedure was found to be very helpful in the process of maintaining investigator objectivity during the completion of this study.

Permanent preservable records of the student teachers' responses have been maintained. In addition, member checking was carried out by returning the accumulated records to the student teachers (and supervising teachers) for verification. Any inconsistencies or errors discovered by the researcher of the respondents were explained and corrected. Student teacher interviews also served as another source of data in addition to data collected in the log book and the survey of instructional learning resources locally available.

The transferability of a naturalistic inquiry can be enhanced by purposive sampling and accumulation of descriptive data that will permit the comparison of the context of one situation with that of another. Through this process, the degree of "fit" between the two or more different settings can be determined and the advisability of transfer assessed. No attempt was made to generalize the findings of this study beyond the setting in which the data were collected. However, it is anticipated that sufficient details on the characteristics of the

schools and the backgrounds of the student teachers have been included to permit the comparison of the current setting with an alternate setting.

Guba and Lincoln (1982) suggest the use of overlap methods, stepwise repiication, and the use of a dependability audit modeled on a fiscal audit to enhance the dependability of a study. While it was not possible to use multiple methods of gathering data nor to split team observers and continue the investigation, an audit trail was provided in the description of procedures used in this study.

Guba and Lincoln (1982) make the point that to carry out all these steps is not usually either logistically or fiscally possible in an actual inquiry. Even if they were to be done, this "will not guarantee the trustworthiness of a naturalistic study." (Guba and Lincoln, 1982, p. 248) But, if the serious researcher has given some thought to these criteria prior to the design of the inquiry, "they will contribute greatly toward persuading a reader and consumer of their meaningfulness." (Guba and Lincoln, 1982, p. 249)

| CHOICE OF MEDIUM | Division level of instruction | | | | |
|---|---|---|---|---|---|
| | I | II | III | IV | Total |
| Print | 303 | 237 | 245 | 180 | 965 |
| Realia | 160 | 172 | 16 | 2 | 350 |
| Audio | 39 | 10 | 4 | 21 | 74 |
| Still/silent | 78 | 53 | 20 | 12 | 163 |
| Still/audio | 7 | 10 | 10 | 15 | 42 |
| Motion/silent | 3 | 1 | 1 | 1 | 6 |
| Motion/audio | 7 | 12 | 24 | 27 | 70 |
| Resource person | 4 | 7 | 3 | | 14 |
| Computer | | | | | |
| Totals | 601 | 503 | 323 | 258 | 1684 |

Figure 5.1 Summary of the types of media used by student teachers.

| Student identification number | Number of lessons taught that used non-text resources | Percent of total lessons taught that used non-text resources | No. of lessons taught that required hardware for presentation | Total number of lessons taught during the fall term | Percent of lessons taught that required hardware for presentation |
|---|---|---|---|---|---|
| 100 | 28 | 17 | 5 | 162 | 3.0 |
| 110 | 197 | 59 | 90 | 333 | 27.0 |
| 120 | 70 | 34 | 12 | 205 | 5.9 |
| 130 | 139 | 39 | 14 | 356 | 3.9 |
| 140 | 71 | 34 | 8 | 209 | 3.8 |
| 150 | 120 | 44 | 1 | 274 | .4 |
| 160 | 19 | 10 | 2 | 190 | 1.1 |
| 170 | 40 | 17 | 19 | 234 | 8.1 |
| 180 | 46 | 40 | 8 | 115 | 7.0 |
| 190 | 37 | 18 | 33 | 209 | 15.8 |
| 200 | 89 | 32 | 14 | 281 | 5.0 |
| 210 | 99 | 45 | 35 | 222 | 15.8 |
| 220 | 103 | 60 | 29 | 173 | 16.8 |
| 240 | 116 | 76 | 24 | 152 | 15.7 |
| 250 | 171 | 79 | 9 | 216 | 4.2 |
| 260 | 180 | 67 | 16 | 268 | 6.0 |
| 280 | 49 | 35 | 13 | 140 | 9.3 |
| 290 | 89 | 48 | 22 | 186 | 12.0 |
| 300 | 21 | 18 | 1 | 117 | .9 |
| TOTALS | 1684 | | 355 | 4042 | |

Figure 5.2 Summary of the lessons taught that used non-textbook resources in the lesson presentation.

| | Major characteristics of lessons taught in which media | |
|---|---|---|
| Variables | were used | were not used |
| Lesson type | Introductory | Developmental |
| Lesson length | 91-180 min. | 1-10 min. |
| Class size | 36-40 | 6-15 |
| Academic Ability | Average | Above average |
| Objective | Affective | Cognitive |
| Type of learning | Principle | Chain |
| Lesson format | Group activities | Simulation |
| Planning | Formal | Informal |
| Planning starting point | Learning resources | Coming event |
| Planning time | 181+ | 11-20 min. |

Figure 5.3 Comparison of the variables receiving the highest relative percentage for lessons in which media were used and lessons in which media were not used.

| Student identification number | Maximum possible number of lessons taught per day | Total number of lessons possible to teach per term | Actual number of lessons taught | Average full-time teacher equivalence workload |
|---|---|---|---|---|
| 110 | 8 | 496 | 333 | .67 |
| 120 | 8 | 496 | 205 | .41 |
| 130 | 8 | 496 | 356 | .72 |
| 140 | 8 | 496 | 209 | .42 |
| 150 | 8 | 496 | 274 | .55 |
| 170 | 8 | 496 | 234 | .47 |
| 180 | 8 | 496 | 115 | .23 |
| 200 | 8 | 496 | 281 | .57 |
| 210 | 8 | 496 | 222 | .48 |
| 250 | 8 | 496 | 216 | .44 |
| 280 | 8 | 496 | 140 | .28 |
| 160 | 7 | 434 | 190 | .44 |
| 220 | 7 | 434 | 173 | .40 |
| 260 | 7 | 434 | 268 | .62 |
| 300 | 7 | 434 | 117 | .27 |
| 290 | 6 | 372 | 186 | .50 |
| 100 | 5 | 310 | 162 | .41 |
| 190 | 5 | 310 | 209 | .67 |
| 240 | 5 | 310 | 152 | .49 |
| TOTALS | | 8494 | 4042 | $\overline{X}$ = .48 |

Figure 5.4 Summary of the student teacher's assigned workload.

| Student identification number | Number of lessons taught | Full time teaching equivalence | Lessons taught using non-text resources | Percent of lessons taught using non-text resources | Lessons taught that required hardware for presentation | Percent of lessons taught that required hardware for presentation |
|---|---|---|---|---|---|---|
| 130 | 356 | .72 | 139 | 39 | 14 | 3.9 |
| 110 | 333 | .67 | 197 | 59 | 90 | 27.0 |
| 190 | 209 | .67 | 37 | 18 | 33 | 15.8 |
| 260 | 268 | .62 | 180 | 67 | 16 | 6.0 |
| 200 | 281 | .57 | 89 | 32 | 14 | 5.0 |
| 150 | 274 | .55 | 120 | 44 | 1 | .4 |
| 290 | 186 | .50 | 89 | 48 | 22 | 12.0 |
| 240 | 152 | .49 | 116 | 76 | 24 | 15.7 |
| 210 | 222 | .48 | 99 | 45 | 35 | 15.8 |
| Subtotal | 2281 | | 1066 | 47 | 249 | $\overline{X}$=11 |
| 170 | 234 | .47 | 40 | 17 | 19 | 8.1 |
| 250 | 216 | .44 | 171 | 79 | 9 | 4.2 |
| 160 | 190 | .44 | 19 | 10 | 2 | 1.1 |
| 140 | 209 | .42 | 71 | 34 | 8 | 3.8 |
| 120 | 205 | .41 | 70 | 34 | 12 | 5.9 |
| 100 | 162 | .41 | 28 | 17 | 5 | 3.0 |
| 220 | 173 | .40 | 103 | 60 | 29 | 16.8 |
| 280 | 140 | .28 | 49 | 35 | 13 | 9.3 |
| 300 | 117 | .27 | 21 | 18 | 1 | .9 |
| 180 | 115 | .23 | 46 | 40 | 8 | 7.0 |
| Subtotal | 1761 | | 618 | 35 | 106 | $\overline{X}$=6 |
| TOTALS | 4042 | | 1684 | 42 | 355 | $\overline{X}$=8.8 |

Figure 5.5 Summary of student teacher workload.
Note: Upper group, 1/2 to 3/4 F.T.E.; lower, 1/4 to 1/2 F.T.E.

| Student identification number | Number of lessons taught | Full-time teaching equivalence | Lessons taught using nontext resources | Percent of lessons taught using nontext resources | Lessons taught that required hardware for presentation | Percent of lessons taught that required hardware for presentation |
|---|---|---|---|---|---|---|
| 110 | 333 | .67 | 197 | 59 | 90 | 27.0 |
| 130 | 356 | .72 | 139 | 39 | 14 | 3.9 |
| 150 | 274 | .55 | 120 | 44 | 1 | .4 |
| 220 | 173 | .40 | 103 | 60 | 29 | 16.8 |
| 260 | 268 | .62 | 180 | 67 | 16 | 6.0 |
| 290 | 186 | .50 | 89 | 48 | 22 | 12.0 |
| | 1590 | .58 | 828 | 52 | 172 | $\bar{X}$=10 |
| 190 | 209 | .67 | 37 | 18 | 33 | 15.8 |
| 200 | 281 | .57 | 89 | 32 | 14 | 5.0 |
| 240 | 152 | .49 | 116 | 76 | 24 | 15.7 |
| 210 | 222 | .48 | 99 | 45 | 35 | 15.8 |
| 170 | 234 | .47 | 40 | 17 | 19 | 8.1 |
| 250 | 216 | .44 | 171 | 79 | 9 | 4.2 |
| 160 | 190 | .44 | 19 | 10 | 2 | 1.1 |
| 140 | 209 | .42 | 71 | 34 | 8 | 3.8 |
| 120 | 205 | .41 | 70 | 34 | 12 | 5.9 |
| 100 | 162 | .41 | 28 | 17 | 5 | 3.0 |
| 280 | 140 | .28 | 49 | 35 | 13 | 9.3 |
| 300 | 117 | .27 | 21 | 18 | 1 | .9 |
| 180 | 115 | .23 | 46 | 40 | 8 | 7.0 |
| | 2452 | .42 | 856 | 35 | 183 | $\bar{X}$=7.5 |

Figure 5.6 Summary of data for student teachers arranged according to job expectations.

Note: Upper group anticipated employment in the school lower group did not.

| Student identification number | Percent of lessons taught using media | Means for lessons in which media were used | Percent of lessons taught using media requiring hardware for their presentation | Means for lessons taught using media requiring hardware for their presentation |
|---|---|---|---|---|
| 130 | 39 | | 3.9 | |
| 290 | 48 | | 12.0 | |
| 220 | 60 | $\overline{X}$=40% | 16.8 | $\overline{X}$=9.0% |
| 280 | 35 | | 9.3 | |
| 100 | 17 | | 3.0 | |
| 210 | 45 | | 15.8 | |
| 110 | 59 | | 27.0 | |
| 190 | 18 | | 15.8 | |
| 300 | 18 | | .9 | |
| 120 | 34 | $\overline{X}$=35.6% | 5.9 | $\overline{X}$=9.5% |
| 170 | 17 | | 8.1 | |
| 250 | 79 | | 4.2 | |
| 160 | 10 | | 1.1 | |
| 180 | 40 | | 7.0 | |
| 240 | 76 | | 15.7 | |
| 200 | 32 | | 5.0 | |
| 140 | 34 | $\overline{X}$=50.6 | 4.3 | $\overline{X}$=6.3% |
| 260 | 67 | | 6.0 | |
| 150 | 44 | | .4 | |

Figure 5.7 Summary of media utilization based on student teacher academic performance.

Note: Student 130 had the highest academic record; student 150, the lowest.

| Student identification number | Percent of lessons taught using media | Means for lessons in which media were used | Percent of lessons taught using media requiring hardware for their presentation | Means for lessons taught using media requiring hardware for their presentation |
|---|---|---|---|---|
| 130 | 39 | | 3.9 | |
| 290 | 48 | | 12.0 | |
| 100 | 17 | $\bar{X}$=39.8% | 3.0 | $\bar{X}$=9% |
| 220 | 60 | | 16.8 | |
| 280 | 35 | | 9.3 | |
| 190 | 18 | | 15.8 | |
| 240 | 76 | | 15.7 | |
| 110 | 59 | | 27.0 | |
| 300 | 18 | | .9 | |
| 210 | 45 | $\bar{X}$=40.2% | 15.8 | $\bar{X}$=10.6% |
| 180 | 40 | | 7.0 | |
| 160 | 10 | | 1.1 | |
| 250 | 79 | | 4.2 | |
| 170 | 17 | | 8.1 | |
| 120 | 34 | | 5.9 | |
| 200 | 32 | | 5.0 | |
| 260 | 67 | $\bar{X}$=42.2% | 6.0 | $\bar{X}$=4.3% |
| 140 | 34 | | 4.3 | |
| 150 | 44 | | .4 | |

Figure 5.8 Summary of media utilization based on student teacher academic performance in education classes.

Note: Student 130 had the highest performance; student 150, the lowest.

| Student identification number | Number of education classes taken | Percent of lessons taught using media | Percent of lessons taught using media requiring hardware for their presentation | Means for lessons taught using media | Means for lessons taught using media requiring hardware for their presentation |
|---|---|---|---|---|---|
| 200 | 10 | 32 | 5.0 | 32 | 5.0 |
| 260 | 7.5 | 67 | 6.0 | 57.5 | 9.0 |
| 290 | 7 | 48 | 12.0 | | |
| 100 | 6 | 17 | 3.0 | | |
| 190 | 6 | 18 | 15.8 | 15.75 | 5.2 |
| 300 | 6 | 18 | .9 | | |
| 160 | 6 | 10 | 1.1 | | |
| 130 | 5.5 | 39 | 3.9 | | |
| 220 | 5.25 | 60 | 16.8 | | |
| 280 | 5 | 35 | 9.3 | | |
| 110 | 5 | 59 | 27.0 | | |
| 120 | 5 | 34 | 5.9 | 44.1 | 8.7 |
| 170 | 5 | 17 | 8.1 | | |
| 250 | 5 | 79 | 4.2 | | |
| 180 | 5 | 40 | 7.0 | | |
| 140 | 5 | 34 | 4.3 | | |
| 150 | 5 | 44 | .4 | | |
| 210 | 4 | 45 | 15.8 | 60.5 | 15.75 |
| 240 | 4 | 76 | 15.7 | | |

Figure 5.9 Summary of media utilization based the number of education classes completed by student teachers.

Note: Student 200 had the most training; student 210 and 240 the least.

| Student identification number | Percent of lessons taught using media | Means for lessons in which media were used | Percent of lessons taught using media requiring hardware for their presentation | Means for lessons taught using media requiring hardware for their presentation |
|---|---|---|---|---|
| 160 | 10 | | 1.1 | |
| 210 | 45 | | 15.8 | |
| 260 | 67 | $\overline{X}$=37.6% | 6.0 | $\overline{X}$=7.2% |
| 290 | 48 | | 12.0 | |
| 300 | 18 | | .9 | |
| 130 | 39 | | 3.9 | |
| 110 | 59 | | 27.0 | |
| 190 | 18 | | 15.8 | |
| 200 | 32 | | 5.0 | |
| 150 | 44 | | .4 | |
| 240 | 76 | | 15.7 | |
| 170 | 17 | $\overline{X}$=41.7% | 8.1 | $\overline{X}$=9.0% |
| 250 | 79 | | 4.2 | |
| 140 | 34 | | 4.3 | |
| 120 | 34 | | 5.9 | |
| 100 | 17 | | 3.0 | |
| 220 | 60 | | 16.8 | |
| 280 | 35 | | 9.3 | |
| 180 | 40 | | 7.0 | |

Figure 5.10 Summary of media utilization based classes taken by student teachers in Educational Communications.

Note: The upper group had training in media utilization, the lower group did not.

| Student identification number | NUMBER OF LESSONS TAUGHT AT EACH DIVISION LEVEL OF INSTRUCTION | | | | Number of lessons taught in which non-text resources were used | Number of lessons taught that required hardware for presentation | Percent of total lessons taught that used non-text resources | Percent of lessons taught that required hardware for presentation |
|---|---|---|---|---|---|---|---|---|
| | I | II | III | IV | | | | |
| 250 | 214 | 2 | | | 171 | 9 | | |
| 110 | 326 | 7 | | | 197 | 90 | | |
| 120 | 195 | 10 | | | 70 | 12 | | |
| 130 | 340 | 16 | | | 139 | 14 | | |
| 180 | 64 | 51 | | | 46 | 8 | | |
| | 1225 | | | | 623 | 133 | 50.1 | 10.9 |
| 210 | 25 | 197 | | | 99 | 35 | | |
| 170 | 7 | 227 | | | 40 | 19 | | |
| 140 | 2 | 207 | | | 71 | 8 | | |
| 200 | 1 | 280 | | | 89 | 14 | | |
| 150 | | 274 | | | 120 | 1 | | |
| 280 | 1 | 135 | | 4 | 49 | 13 | | |
| | 1350 | | | | 468 | 90 | 34.5 | 6.7 |
| 300 | | | 117 | | 21 | 1 | | |
| 220 | | | 173 | | 103 | 29 | | |
| 100 | | | 105 | 57 | 28 | 5 | | |
| 290 | | | 105 | 81 | 89 | 22 | | |
| 260 | | | 193 | 75 | 180 | 16 | | |
| | | | 906 | | 421 | 73 | 46.7 | 8.1 |
| 160 | | 34 | 59 | 97 | 19 | 2 | | |
| 240 | 2 | 1 | | 149 | 116 | 24 | | |
| 190 | | | | 209 | 37 | 33 | | |
| | | | | 551 | 172 | 59 | 31.2 | 10.7 |

Figure 5.11 Comparison of media utilization by student teachers for the lessons which were taught in Divisions I, II, III and IV.

| Subject area taught | Total number of lessons taught | Total number of lessons taught in which non-text resources were used | Percent of the lessons taught in which non-text resources were used | Number of lessons taught that did not required hardware for their presentation | Percent of lessons taught that did not required hardware for their presentation | Number of lessons taught that required hardware for presentation | Percent of lessons taught that required hardware for presentation |
|---|---|---|---|---|---|---|---|
| Art | 104 | 68 | 65 | 57 | 55 | 11 | 11 |
| Consumer Ed. | 2 | 2 | 100 | | | 2 | 100 |
| Current Affairs | 20 | 20 | 100 | 19 | 95 | 1 | 5 |
| Drama | 12 | 7 | 58 | 7 | 58 | | |
| E.S.L. | 64 | 23 | 36 | 4 | 6 | 19 | 30 |
| English | 1660 | 487 | 29 | 446 | 27 | 43 | 3 |
| French | 266 | 83 | 31 | 49 | 18 | 34 | 13 |
| German | 46 | 26 | 57 | 11 | 24 | 15 | 33 |
| Health | 139 | 66 | 47 | 41 | 29 | 25 | 18 |
| Library | 9 | 2 | 22 | 2 | 22 | | |
| Mathematics | 509 | 166 | 33 | 152 | 30 | 14 | 3 |
| Music | 21 | 17 | 81 | 3 | 14 | 14 | 66 |
| Party | 1 | 1 | 100 | | | 1 | 100 |
| Physical Ed. | 161 | 79 | 49 | 49 | 30 | 30 | 19 |
| Physics | 3 | | | | | | |
| Resource Room | 73 | 15 | 21 | 7 | 10 | 8 | 11 |
| Religion | 52 | 38 | 44 | 15 | 29 | 23 | 44 |
| Social Studies | 606 | 382 | 63 | 318 | 52 | 63 | 10 |
| Science | 293 | 201 | 69 | 148 | 51 | 52 | 18 |
| Show and Tell | 1 | 1 | 100 | 1 | 100 | | |
| TOTALS | 4042 | 1684 | | 1329 | | 355 | |

Figure 5.12 Summary of the percentage of lessons taught in each subject in which media were used.

| | | TOTALS | STUDENT IDENTIFICATION NUMBER | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 250 | 110 | 120 | 130 | 180 | 210 |
| Cognitive Structure | Stimulates interest | 594 | 38 | 93 | 20 | 57 | 19 | 62 |
| | Vary teaching method | 545 | 132 | 52 | 11 | 21 | 9 | 22 |
| | Promotes understanding | 275 | | 6 | 10 | 48 | 12 | 6 |
| | Facilitates thinking | 51 | | 8 | 8 | | 3 | 1 |
| Motivational Structure | Text adequate | 1437 | 33 | 48 | 60 | 100 | 15 | 106 |
| | Don't believe it would help | 550 | 4 | | 35 | 111 | 24 | 5 |
| | Not necessary | 267 | 8 | 88 | 22 | 4 | 22 | 7 |
| | Too time consuming | 42 | | | 18 | | 2 | 1 |
| | Can't operate equipment | 4 | | | | | | 2 |
| Barriers | Software unavailable | 45 | | | | | 6 | 2 |
| | Hardware unavailable | 2 | | | | | | |

Figure 5.13 Summary of indicators of student teacher cognitive structure, motivational structure and barriers to the use of media.

| | | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 170 | 140 | 200 | 150 | 280 | 300 | 220 |
| Cognitive Structure | Stimulates interest | 23 | 30 | 37 | 57 | 14 | 2 | 23 |
| | Vary teaching method | 13 | 14 | 11 | 10 | 16 | 14 | 20 |
| | Promotes understanding | 4 | 16 | 22 | 35 | 12 | | 24 |
| | Facilitates thinking | | 3 | | 3 | 5 | | |
| Motivational Structure | Text adequate | 167 | 79 | 88 | 90 | 33 | 57 | 33 |
| | Don't believe it would help | 5 | 50 | 71 | 37 | 34 | 39 | 22 |
| | Not necessary | 19 | | | 26 | 20 | | 11 |
| | Too time consuming | | 5 | 9 | | | | |
| | Can't operate equipment | | 1 | | | 1 | | |
| Barriers | Software unavailable | | 2 | 23 | | 1 | | 4 |
| | Hardware unavailable | | 1 | | | | | |

Figure 5.13 Continued.

| | | STUDENT IDENTIFICATION NUMBER | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 100 | 290 | 260 | 160 | 240 | 190 | |
| Cognitive Structure | Stimulates interest | 8 | 11 | 71 | 6 | 16 | 7 | |
| | Vary teaching method | 2 | 58 | 63 | 3 | 55 | 19 | |
| | Promotes understanding | 9 | 4 | 23 | 9 | 30 | 5 | |
| | Facilitates thinking | 6 | 4 | | | 5 | 5 | |
| Motivational Structure | Text adequate | 112 | 56 | 40 | 169 | 31 | 120 | |
| | Don't believe it would help | 12 | 13 | 41 | 1 | 4 | 42 | |
| | Not necessary | 7 | 23 | 2 | | 1 | 7 | |
| | Too time consuming | 1 | 3 | 3 | | | | |
| | Can't operate equipment | | | | | | | |
| Barriers | Software unavailable | 1 | 1 | 2 | | | 3 | |
| | Hardware unavailable | 1 | | | | | | |

Figure 5.13 Continued.

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# APPENDIX A

## RECOMMENDED MEDIA STANDARDS

C.L.S.A.

RECOMMENDED MEDIA STANDARDS FOR

LIBRARY DEMONSTRATION SCHOOLS

| MATERIALS | RESOURCES IN SCHOOL | IDEAL STANDARD |
|---|---|---|
| Books | | Initial collection - 5000 increasing to 20 per student |
| Magazines and newspapers | | Elementary 15 - 25<br>Secondary 30 - 50 |
| Pamphlets, clippings, and miscellaneous materials | | Pamphlets, government documents, vocational information, clippings, and other materials appropriate to the curriculum and for other interests of the students. |
| Filmstrips | | 3 titles per student |
| 8mm. films | | 1 title per student |
| Tape and disc recordings | | 4 - 6 titles per student |
| Slides | | 500 (all sizes) |
| Flat pictures | | 750 - 1000 |
| Art prints | | 250 (add duplicates as required |
| Globes | | 2 per media center |
| Maps | | 1 map for each region studied and special maps (economic, weather, political, historical) for each area to be studied |
| Transparencies | | 2,000 |
| Programmed Materials | | In quantities dictated by special needs |

| MATERIALS | RESOURCES IN SCHOOL | IDEAL STANDARD |
|---|---|---|
| Realia | | In quantity and variety to support educational programs |
| 16mm sound projector | | 2 per media center |
| 8mm projector | | 2 per media center |
| 2 x 2 slide projector remotely controlled | | 2 per media centre |
| Filmstrip or combination filestrip-slide projector | | 4 per media centre |
| Sound filmstrip projector | | 2 per media centre |
| 10 x 10 overhead projector | | 1 per teaching station plus 1 per media centre |
| Opaque projector | | 1 per media centre |
| Filmstrip viewer | | 1 per teaching station plus the equivalent number in the media centre |
| 2 x 2 slide viewer | | 3 per media centre |
| TV receiver | | 1 per division where programs are available |
| Microprojector | | 1 per media center |
| Record player | | 1 per 4 teaching stations, 3 per media centre |
| Tape recorder | | 1 per 2 teaching stations plus 2 per media centre |
| Listening stations | | A portable listening station with 6 - 10 sets of earphones |

| MATERIALS | RESOURCES IN SCHOOL | IDEAL STANDARD |
|---|---|---|
| Projection cart | | 1 per portable piece of projection equipment, purchased at the time the equipment is obtained |
| Projection screen | | 1 permanently mounted screen per classroom plus additional screens of suitable size as needed for individual and small goups use. The permanent screen should be no smaller than 70 x 70 with keystone eliminator |
| Radio receiver | | 1 per media center plus central distribution system (AM-FM) or 1 per teaching station |
| Copy machine | | 1 per media centre plus 1 per 30 teaching stations |
| Light control | | Adequate light control in every classroom and media centre to the extent that all types of projected media can be utilized effectively |
| Local production equipment | | Dry mount press and tacking iron, paper cutters, transparency production equipment, mechanical lettering devices |
| Local or system level production equipment | | 16mm camera, 8mm camera, equipment for darkroom, large font typewriter, 35mm still camera, tape splicer, slide reproducer |

# APPENDIX B

## THE STRUCTURED LOGBOOK RECORD

## STRUCTURED LOG BOOK RECORD

Name: _____ Subject: _____

Grade #: _____ Lesson #: _____

EXAMPLES

WRONG (A X C D E F G H I J)

WRONG (A ● C D E F G H I J)

RIGHT (A ● C D E F G H I J)

| | | | |
|---|---|---|---|
| 76. | Level: | a. Div. I b. Div. II c. Div. III d. Div. IV . . | 76 |
| 77. | Type of learning: | a. Signal b. Chain c. M/descrimination . . . . . d. Concept e. Principle f. Other _____ | 77 |
| 79. | Domain of major objective: | a. Cognitive b. Affective c. Psychomotor . . . . d. Other _____ | 79 |
| 81. | Lesson type: | a. Introductory b. Developmental c. Summary d. Review e. Other _____ . . . . | 81 |
| 82. | Lesson format: | a. Lecture b. Demonstration c. Discussion. . . . d. Drill and practice e. Learning center(s) f. Other _____ | 82 |
| 84. | Lesson length (minutes): | a. 1-10 b. 11-20 c. 21-30 d. 31-40. . . . . e. 41-50 f. Other _____ | 84 |
| 86. | Number of students: | a. 1 b. 2-5 c. 6-15 d. 16-25 e. Other _____. . . . . | 86 |
| 87. | Ability of class: | a. Below ave. b. Ave. c. Above ave. . . . . d. Other _____ | 87 |
| 89. | Idea source: | a. Own b. Text/workbook c. Coop teacher d. Other teacher e. Other _____. | 89 |
| 90. | Plan: | a. Written out/part of a unit . . . . . b. Written out/not part of a unit c. Not written out/part of a unit d. Not written out/not part of a unit | 90 |
| 93. | Total planning time (minutes): | a. 1-10 b. 11-20 c. 21-30 d. 31-40 e. 41-50 f. Other _____. . . . . | 93 |
| 94. | Location while planning: | a. In school b. Other _____. . . | 94 |
| 96. | Starting point of planning: | a. Objectives b. Subject matter c. Learner activities d. Teacher activities . . . e. Learner characteristics f. Instructional resources g. Evaluation h. Other _____ | 96 |

**Structured Log Book Record - 2**

176. Did you use any instructional resources other than texts and/or workbooks?
a. Yes - proceed . . . . . 176
b. No - go to question 192

178. Choice of resource:
a. Print b. Realia c. Audio d. Still . . . . . 178
e. Still/audio f. Motion g. Motion/audio
h. Resource person i. Computer
j. Other _____

181. Source of resource:
a. Teacher prepared b. School library
c. Unit library d. Sask. Media . . . . . 181
e. Univ. library f. Public library g. Free
h. Other _____

183. Purpose using resource:
a. Overcome physical limitations of time, of space, distance . . . . . 183
b. Stimulate interest c. Save time
d. Vary teaching method e. Other _____

186. Part of the lesson used in:
a. Create anticipatory set
b. Present objective and rationale for learning . . 186
c. Present instructional input
d. Provide model of what students are to do 187
e. Elicit learner response to check for understanding 188
f. Direct learner response by providing guided practice 189
g. Direct learner response by providing independent practice 190
h. Assessment of learner response
i. Other _____

192. Reason for not using resources:
a. Too time consuming . . . . . 192
b. Software unavailable
c. Hardware unavailable 193
d. Can't operate equipment
e. Text adequate 194
f. Don't believe it would help 195
g. Other _____

Special comments: _____ 196

197

198

199

200

# APPENDIX C

## STUDENT TEACHER INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

1. Consider the description of this hypothetical lesson in business education as a lesson preconference held between you and your cooperating teacher. Based on the information that is available, code the structured logbook record as you would if you were preparing to teach this lesson.

2. Do you think that you could teach this lesson?

3. From your experience with using the checklist, can you recommend any changes in the lesson plan checklist?

4. Suppose, that because of budget restrictions, you could only have one non-text resource to assist you in your own classroom. Which resource would you choose as being most valuable to you? Why would you select _____ ?

5. Consider the opposite case, which one would you be most willing to give up? Why?

6. For you, what is the most important thing that media can help you do in the classroom? Other things?

7. Have you ever wanted to use a non-text resource but couldn't for some reason?

8. How do you think your use of non-text resources compares with other teachers in the school?

9. Have you had any special training or experience working in media centers, graphic arts departments, photo studios etc.?

HYPOTHETICAL LESSON ASSIGNMENT

The task assigned to the intern by the co-operating teacher during the weekly planning session was to teach a unit on money management to an eighth grade class. The unit was developed with the intent of helping students to gain a better understanding of how to borrow money.

The twenty-five students in the class came from predominatly working class homes. Most of their parents were employed by local businessmen or earned their livelihood by farming. Several of the students had ambitions of owning their own businesses. They tended to be quite competative and mathematically inclined. Two students were repeating the grade and as such, were a year older than their classmates. The remainder were good in English and Social Studies. However, they did not particularly like the challenge of solving math problems. In general, with the exception of the one mainstreamed student, the class was an average eighth grade class.

The major focus or objective and starting point in the planning of this forty minute lesson (the third in a series of five) was to have each student be able to compare the results of borrowing the same sum of money from three different sources. The intern reviewed, on the board, the formula I=PxRxT and worked through three examples given in the text. Then, taking into account other relevant considerations developed in the previous lessons, the students were to discriminate between financially sound and unsound borrowing decisions. In times of high interest rates and unstable economies, suvival often depends on learing the facts of

proper money management early in life.

The final planning for the lesson was done in the school library during a forty minute spare period. An abbreviated lesson plan was prepared to assist the college supervisor during the pre-conference and lesson observation sessions. While looking through some books for material to reinforce the argumentns presented in the text, the intern discovered that short two minute taped radio interviews with bank, credit union and finance company officials were held by the library. Now, instead of having to go out and interview these people, a lot of time and energy could be saved by having the students listen to the tapes.

Each student then had an opportunity to practice their individaul information gathering and computational skills while the intern was left free to check on the individual student's progress and monitor the worthwhile discussion that naturally occurred among the learners.

VITA

Leonard Frederick Proctor was born in Turtleford, Saskatchewan, Canada, on June 29, 1942. He received a B.A. in English, a B.Ed. in Secondary Education, and a M.Ed. in Adult Education in 1968, 1970 and 1975 from the University of Saskatchewan. After teaching for several years in Saskatoon and the surrounding communities, he returned to full time studies and received M.L.S. and Ph.D. degrees from Indiana University in 1982 and 1983. He has returned to Saskatchewan to resume his duties as an assistant professor in the College of Education at the University of Saskatchewan.